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NEWS	22	JUL 28	CA/CAPplus patent coverage enhanced
NEWS	23	JUL 28	EPFULL enhanced with additional legal status information from the epoline Register
NEWS	24	JUL 28	IFICDB, IFIPAT, and IFIUDB reloaded with enhancements
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NEWS	27	AUG 13	CA/CAPplus enhanced with printed Chemical Abstracts page images from 1967-1998
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NEWS	29	AUG 15	CAPplus currency for Korean patents enhanced

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L5 0 FILE LIFESCI
L6 29 FILE PASCAL

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ACCESSION NUMBER: 2007-0344185 PASCAL

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TITLE (IN ENGLISH): Integrated on-chip inductors with magnetic films
Selected papers from the Tenth Joint Magnetism and
Magnetic Materials-International Magnetism
(MMM-Intermag) Conference, Baltimore, Maryland,
January 7-11, 2007

AUTHOR: GARDNER Donald S.; SCHROM Gerhard; HAZUCHA Peter;
PAILLET Fabrice; KAMIK Tanay; BORKAR Shekhar
HOFFMANN Axel (ed.); MCHENRY Michael E. (ed.)

CORPORATE SOURCE: Circuits Research, Intel Labs, Santa Clara CA 94040,
United States; Intel, Hillsboro, OR 97124, United
States
Argonne National Laboratory, Argonne, Illinois, United
States; Carnegie Mellon University, Pittsburgh,
Pennsylvania, United States

American Institute of Physics, College Park, MD,
United States (org-cong.); IEEE. Magnetism Society,
United States (org-cong.)

SOURCE: IEEE transactions on magnetism, (2007), 43(6),
2615-2617, 12 refs.

Conference: 10 Joint MMM-Intermag Conference,
Baltimore, MD (United States), 7 Jan 2007

ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-222H6, 354000149645801750

AN 2007-0344185 PASCAL

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AB On-chip inductors with 2 levels of magnetic material were integrated into
an advanced 130-nm CMOS process to obtain over an order of magnitude
increase in inductance (19 x) and Q-factor (16 x), significantly greater

than prior values of < 2.3x for high frequency inductors. The magnetic material enhances inductance at frequencies up to 9.8 GHz. Measurements and models of the permeability from amorphous CoZrTa alloy demonstrate that the skin effect and eddy current dampening become important. Two levels of magnetic material with high-temperature and long annealing-time stability, high saturation magnetization, low magnetostriction, high resistivity, minimal hysteretic loss, and compatibility with Si technology were used in combination with magnetic vias and elongated structures that take advantage of the uniaxial magnetic anisotropy.

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ACCESSION NUMBER: 2007-0130739 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2007 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Permeability of fine magnetic particles :
Measurements, calibration, and pitfalls
Selected papers from the International Magnetism
Conference (Intermag 2006), San Diego, California, May
8-12, 2006
AUTHOR: DOK WON LEE; WANG Shan X.; YUN JUN TANG; HONG Jung-Il;
BERKOWITZ Ami E.
SHULL Robert D. (ed.)
CORPORATE SOURCE: Department of Materials Science and Engineering,
Stanford University, Stanford, CA 94305-4045, United
States; Western Digital, Lake Forest, CA 92630, United
States; Department of Physics, University of
California at San Diego, La Jolla, CA 92093, United
States
National Institute of Standards and Technology,
Gaithersburg, MD, United States
Institute of Electrical and Electronics Engineers
(IEEE), New York, NY, United States (org-cong.)
SOURCE: IEEE transactions on magnetism, (2006), 42(10),
3335-3337, 8 refs.
Conference: 41 Intermag 2006 International Magnetism
Conference, San Diego, California (United States), 8
May 2006
ISSN: 0018-9464 CODEN: IEMGAQ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222H6, 354000157220113540

AN 2007-0130739 PASCAL
CP Copyright .COPYRGT. 2007 INIST-CNRS. All rights reserved.
AB High-frequency permeability spectra of FeSiB coatings prepared with
spark-eroded magnetic particles were studied. In order to measure the
relative permeability of FeSiB coatings with low permeability more
accurately, the calibration procedure of the existing permeameter was
modified. The modified permeability spectra indicate that FeSiB coatings
have the relative permeability below 10 and appreciable losses at
frequencies above .eqvsim. 20 MHz. Permeability spectra of CoTaZr
amorphous films with the relative permeability above 600 were used for
the comparison.

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ACCESSION NUMBER: 2006-0516070 PASCAL
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TITLE (IN ENGLISH): Perpendicular magnetic recording technology at 230 Gbit/in.sup.2
 Proceedings of the 6th International Symposium on Physics of Magnetic Materials (ISPMM 2005), 13-16 September 2005, Singapore

AUTHOR: MOSER A.; BONHOTE C.; DAI Q.; DO H.; KNIGGE B.; IKEDA Y.; LE Q.; LENGFIELD B.; MACDONALD S.; LI J.; NAYAK V.; PAYNE R.; SCHABES M.; SMITH N.; TAKANO K.; TSANG C.; VAN DER HEIJDEN P.; WERESIN W.; WILLIAMS M.; XIAO M.

CORPORATE SOURCE: LIU Bo (ed.); LI Kebin (ed.); ZHOU Tiejun (ed.)
 San Jose Research Center, Hitachi Global Storage Technologies, 650 Harry Rd, San Jose, CA 95120, United States

SOURCE: Data Storage Institute, Singapore 117 608, Singapore
 Journal of magnetism and magnetic materials, (2006), 303(2), 271-275, 12 refs.
 Conference: 6 ISPMM 2005 International Symposium on Physics of Magnetic Materials, Singapore (Singapore), 13 Sep 2005
 ISSN: 0304-8853 CODEN: JMMMDC

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Netherlands

LANGUAGE: English

AVAILABILITY: INIST-17230, 354000115478180010

AN 2006-0516070 PASCAL

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AB A perpendicular recording system that allows areal densities beyond 200 Gbit/in.sup.2 has been designed and tested to investigate the major challenges in perpendicular magnetic recording. The integrated write/read head has a trailing shield to improve the write head field gradient and a conventional CIP-GMR reader. The medium is a low-noise CoPtCr-based oxide medium with a CoTaZr soft underlayer. On track byte error rates at .eqvsim. 50 Mb/s are better than 10.sup.-.sup.4 at .eqvsim.1000 kbp.i. Using a 15% off-track criterion at 10.sup.-.sup.2 byte error rate, track densities between 200-240 ktpi are realized, yielding areal densities of 210-233 Gbit/in.sup.2. High-resolution magnetic force microscopy (hrMFM) has been employed to investigate the write characteristics of these heads with improved cross-track resolution. Using a quantitative analysis method, many parameters, such as transition curvature and transition width, are estimated from the hrMFM image. Significant transition curvature is found, which increases the width of the read head response to a transition, T.sub.5.sub.0, by 2-3 nm. These results give insights into the recording physics of perpendicular recording and in particular point out improvements required for achieving even higher areal densities.

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ACCESSION NUMBER: 2005-0346394 PASCAL

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TITLE (IN ENGLISH): Exchange-biased soft underlayers for perpendicular recording

AUTHOR: TANAHASHI Kiwamu; ARAI Reiko; HOSOE Yuzuru

CORPORATE SOURCE: Storage Technology Research Center, Hitachi, Ltd., Odawara, Kanagawa 256-8510, Japan

SOURCE: IEEE transactions on magnetics, (2005), 41(2), 577-580, 6 refs.

Conference: 15 Annual Magnetic Recording Conference
(TRMC 2004), Boulder, Colorado (United States), 11 Aug
2004
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222H6, 354000127014970080

AN 2005-0346394 PASCAL
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AB We inserted NiFe/CoFe/antiferromagnetic-MnIr/ CoFe layers between two
CoTaZr soft layers to enhance the exchange-bias field
(H.sub.e.sub.b) and then evaluated the effect of this lamination on the
spike noise and recording characteristics of CoCrPt-SiO_x media with an
exchange-biased soft magnetic underlayer (SUL). The two CoTaZr
layers were exchange-biased radially throughout the disk, and a higher
H.sub.e.sub.b was obtained for the upper CoTaZr layer. By using
the laminated SUL, spike noise was suppressed even when the total
thickness of the CoTaZr layers was increased to 300 nm.
Although the medium had a high H.sub.c of 7.0 kOe, a fairly good
overwrite and signal-to-noise ratio were obtained. As another application
of exchange biasing, we also examined the possibility of combining
exchange biasing and antiparallel-coupled (APC) soft layers; i.e., a
pinned APC SUL. An exchange-bias field from the pinning layers to the
lower CoTaZr layer and an exchange-coupled field between the
two CoTaZr layers were successfully applied. The medium with
the pinned APC SUL showed no spike noise throughout the disk, and
wide-area adjacent track erasure was effectively suppressed.

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ACCESSION NUMBER: 2005-0126987 PASCAL
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TITLE (IN ENGLISH): Dynamic and static magnetic anisotropy in thin-film
cobalt zirconium tantalum
Proceedings of the 5th International Symposium on
Metallic Multilayers (MML04)

AUTHOR: NIBARGER J. P.; EWASKO R. L.; SCHNEIDER M. L.; SILVA
T. J.
CELINSKI Zbigniew (ed.); SILVA Thomas (ed.)

CORPORATE SOURCE: Storage Technology Corp., One StorageTek Drive,
Louisville, CO 80028-4274, United States; National
Institute of Standards and Technology,
Electromagnetics Division, Boulder, CO 80305, United
States
Department of Physics, University of Colorado, 1420
Austin Bluffs Parkway, Colorado Springs 80918, United
States; NIST, Boulder, United States

SOURCE: Journal of magnetism and magnetic materials, (2005),
286, 356-361, 11 refs.
Conference: 5 MML04 International Symposium on
Metallic Multilayers, Boulder, CO (United States), 8
Jun 2004
ISSN: 0304-8853 CODEN: JMMMD

DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-17230, 354000126616340760

AN 2005-0126987 PASCAL
CP Copyright .COPYRGT. 2005 INIST-CNRS. All rights reserved.
AB The magnetic anisotropy values of thin amorphous cobalt zirconium tantalum (CZT) films were determined from static and dynamic measurements. Dynamic techniques show a rotatable component of anisotropy that decreases with increasing longitudinal bias field from 200 to 0±48 A/m (2.5 to 0±0.6 Oe). The dynamic value of the anisotropy is important when using CZT in high-frequency magnetic applications. Static values were obtained with an induction-field magnetometer while dynamic values were obtained using a pulsed inductive microwave magnetometer.

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ACCESSION NUMBER: 2004-0242635 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2004 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Dynamic anisotropy in amorphous CoZrTa films
AUTHOR: NEUDERT Andreas; MCCORD Jeffrey; SCHAFER Rudolf; SCHULTZ Ludwig
CORPORATE SOURCE: Leibniz Institute for Solid State and Materials Research IFW Dresden, Helmholtzstrasse 20, D-01069 Dresden, Germany
SOURCE: Journal of applied physics, (2004-06-01), 95(11), 6595-6597
ISSN: 0021-8979 CODEN: JAPIAU
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-126

AN 2004-0242635 PASCAL
CP Copyright .COPYRGT. 2004 American Institute of Physics. All rights reserved.
AB The high-frequency response of amorphous CoZrTa thin films was measured by using a pulsed inductive microwave magnetometer. The anisotropy of the magnetic films was varied by magnetic field annealing. Static anisotropy field values ranging from H.sub.k=100 to 1920 A/m were obtained. The dynamically determined anisotropy field is shifted to higher values compared to the static anisotropy by an additional isotropic internal field H.sub.a.sub.d.sub.d. This internal field is independent of the strength of the static anisotropy field. We determined a value of about H.sub.a.sub.d.sub.d=510 A/m. .COPYRGT. 2004 American Institute of Physics.

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ACCESSION NUMBER: 2003-0231923 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2003 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Exchange-biased CoTaZr soft underlayer for perpendicular recording
AUTHOR: TANAHASHI Kiwamu; KIKUKAWA Atsushi; HOSOE Yuzuru
CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo 185-8601, Japan
SOURCE: Journal of applied physics, (2003-05-15), 93(10), 8161-8163
ISSN: 0021-8979 CODEN: JAPIAU
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States

LANGUAGE: English
 AVAILABILITY: INIST-126
 AN 2003-0231923 PASCAL
 CP Copyright .COPYRGT. 2003 American Institute of Physics. All rights reserved.
 AB As a way of controlling the domain structure of a soft magnetic underlayer, we introduced a Pd/antiferromagnetic-MnIr/CoFe trilayer below a CoTaZr soft magnetic underlayer in perpendicular recording media, and we examined the effect of exchange biasing on the spike noise. Films consisting of layer structure-Pd (5 nm thick)/MnIr (7.5 nm)/CoFe (1-10 nm)/CoTaZr (50-200 nm)-were sputter deposited on precoated glass disks. The Fe content in the CoFe layer was varied from 5 to 70 atomic% . After deposition, the films were heated to 250°C and cooled in a magnetic field. Both uniaxial and unidirectional anisotropies were induced along the radial direction of the disk. It was found that the Pd layer promoted a face-centered-cubic-MnIr (111) crystalline texture, while the CoFe layer enhanced the exchange bias field $H_{\text{sub.e.sub.x}}$ by 1.5-3.2 times, compared with that in the case of a Pd/MnIr/CoTaZr film. The value of $H_{\text{sub.e.sub.x}}$ was strongly dependent on the CoFe alloy composition. By using the Pd/MnIr/Co.sub.6.sub.0Fe.sub.4.sub.0 trilayer, spike noise was suppressed when the thickness of the CoTaZr layer ranged from 50 to 200 nm. This suppression is probably due to the fact that the exchange biasing restrained the formation of domain walls in the CoTaZr layers. .COPYRGT. 2003 American Institute of Physics.

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ACCESSION NUMBER: 2004-0131569 PASCAL
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 TITLE (IN ENGLISH): Influence of magnetic properties on magnetization dynamics of high- ρ films
 Selected Papers from the 2003 International Magnetism Conference (INTERMAG 2003), Boston Marriott Copley Place, Boston, MA, March 30-April 3, 2003
 AUTHOR: MCCORD Jeffrey; PAUL Johannes
 CORPORATE SOURCE: Leibniz Institute for Solid State and Materials Research, 01069 Dresden, Germany, Federal Republic of; IBM Speichersysteme GmbH, 55131 Mainz, Germany, Federal Republic of
 SOURCE: IEEE transactions on magnetism, (2003), 39(5, PART2), 2359-2361, 9 refs.
 Conference: INTERMAG 2003 International Magnetism Conference, Boston, MA (United States), 30 Mar 2003
 ISSN: 0018-9464 CODEN: IEMGAQ
 DOCUMENT TYPE: Journal; Conference
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: United States
 LANGUAGE: English
 AVAILABILITY: INIST-222H6, 354000113114130450
 AN 2004-0131569 PASCAL
 CP Copyright .COPYRGT. 2004 INIST-CNRS. All rights reserved.
 AB The influence of magnetic properties on the magnetization dynamics of high-resistivity amorphous CoZrTa thin films was investigated. A strong correlation with magnetic coercivity was found. Even small values of coercivity have an effect on the observed FMR frequency and the effective magnetic damping parameter α . The increased coercivity is due to a locally changing magnetic anisotropy distribution acting as a trap for the domain walls. The inhomogeneous anisotropy distribution in the films leads to additional frequency components observed during the

dynamic remagnetization processes. The anisotropy field is measured directly from the dynamically obtained data. The observed dynamic response of the films makes them suitable for applications in the gigahertz regime.

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ACCESSION NUMBER: 2003-0227106 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2003 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Low-noise CoCrPtO perpendicular media with improved resolution
AUTHOR: VELU E. M. T.; MALHOTRA Sudhir; BERTERO Gerardo; WACHENSCHWANZ David
CORPORATE SOURCE: Komag Inc., San Jose, CA 95131, United States
SOURCE: IEEE transactions on magnetics, (2003), 39(2, PART1), 668-672, 11 refs.
Conference: 13 Annual Magnetic Recording Conference on Recording Systems (TMRC '02), Santa Clara, CA (United States), 26 Aug 2002
ISSN: 0018-9464 CODEN: IEMGAQ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222H6, 354000104257920090

AN 2003-0227106 PASCAL
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AB CoCrPtO perpendicular media with coercivities greater than 6000 Oe, M.sub.r/M.sub.s equal to 1.0, and negative nucleation fields exceeding 3000 Oe were produced. The crystallographic, magnetic, and recording properties were optimized with respect to Ru interlayer and CoTaZr soft-underlayer thicknesses. Media with exchange decoupled magnetic grains as small as 7 nm with a narrow size distribution capable of supporting a linear density up to 720 kfc/ in were produced. Thermal decay measured at 50 kfc/ in at ambient temperature was less than 0.1%.

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ACCESSION NUMBER: 2002-0243367 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2002 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Reduction of spike noise in perpendicular recording media by using MnIr antiferromagnetic films
AUTHOR: TANAHASHI Kiwamu; KIKUKAWA Atsushi; SHIMIZU Noboru; HOSOE Yuzuru
CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo 185-8601, Japan
SOURCE: Journal of applied physics, (2002-05-15), 91(10), 8049-8051
ISSN: 0021-8979 CODEN: JAPIAU
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-126

AN 2002-0243367 PASCAL
CP Copyright .COPYRGT. 2002 American Institute of Physics. All rights reserved.
AB We introduced a NiFe/antiferromagnetic-MnIr bilayer or a NiFe/MnIr/NiFe trilayer below a CoTaZr soft magnetic underlayer in

perpendicular recording media as a way of controlling the magnetic domain structure of the soft magnetic underlayer, and we investigated the effect of exchange biasing on the spike noise. Samples consisting of a layer structure-NiFe (5 nm thick)/MnIr (2.5-50 nm)/NiFe (5 nm)/CoTaZr (50-200 nm)-were sputter deposited on precoated glass disks. The samples were heated with a lamp heater and cooled in a magnetic field along the radial direction of the disk. Both uniaxial and unidirectional anisotropies were induced along the magnetic field when the thickness of the MnIr layer was more than 5 nm. The first NiFe layer promoted a fcc-MnIr (111) crystalline texture, while the second NiFe layer enhanced the value of exchange-bias field by about 20%. The exchange-bias field increased from 6 to 24 Oe as the CoTaZr-layer thickness decreased from 200 to 50 nm. Many spikes along the radial direction were observed for a 100-nm-thick CoTaZr single-layer film, while no remarkable spikes were observed for a NiFe/MnIr/NiFe/CoTaZr (100 nm) film. It was found that the NiFe/MnIr/NiFe trilayer restrained the formation of domain walls in the CoTaZr layer, thereby reducing the spike noise. .COPYRGT. 2002 American Institute of Physics.

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ACCESSION NUMBER: 2003-0023896 PASCAL

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TITLE (IN ENGLISH): High-frequency microinductors with amorphous magnetic ground planes
Selected papers from the 2002 international magnetism conference (INTERMAG 2002), Amsterdam, The Netherlands, April 28-May 2, 2002 (Part I of two parts)

AUTHOR: CRAWFORD Ankur M.; GARDNER Donald; WANG Shan X.
CORPORATE SOURCE: Department of Materials Science and Engineering, Stanford University, Stanford, CA 94305, United States; Intel Corporation, Santa Clara, CA 95054, United States; Departments of Electrical Engineering and Materials Science, Stanford University, Stanford, CA 94305, United States

SOURCE: IEEE transactions on magnetism, (2002), 38(5, PART1), 3168-3170, 7 refs.

Conference: INTERMAG 2002: International Magnetism Conference, Amsterdam (Netherlands), 28 Apr 2002

ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-222H6, 354000105351864120

AN 2003-0023896 PASCAL

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AB For the first time, inductors were fabricated on silicon using standard silicon processing tools. The 2.75 turn device exhibits a cutoff frequency of 3.3 GHz. The study incorporated ground planes of amorphous CoTaZr below and above the inductor. CoTaZr has a resistivity of .eqvsim. 100 $\mu\Omega$. cm, a $4\pi M$.sub.s of 15 kG, a permeability of .eqvsim. 870 up to 1.4 GHz, and an H.sub.c of 0.2 Oe (unpatterned film). These properties were monitored during the process and showed no signs of degradation, even after being exposed to process temperatures of 400 °C. Octagonal devices with slotted ground planes had the best frequency response with a cutoff frequency of 3.3 GHz for inductors with 0.4- μ m-thick ground planes. Maximum inductive enhancement (over air-core inductors) of 50%-60% has been measured for

devices with 1 μm of CoTaZr underneath the inductor. Similarly, two layers of 0.4- μm CoTaZr exhibit increased inductance of 30%-40% with one ground plane and up to 150% with two ground planes.

L8 ANSWER 12 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
on STN

ACCESSION NUMBER: 2003-0126783 PASCAL
TITLE (IN ENGLISH): Effects of carbon intermediate layer on structural and magnetic properties of double-layered perpendicular magnetic recording media
AUTHOR: HONDA Y.; HIRAYAMA Y.; KIKUKAWA A.; FUTAMOTO M.
CORPORATE SOURCE: Central Research Laboratory Hitachi Ltd.,
Kokubunji-shi 185-8601, Japan
SOURCE: IEICE Transactions on Electronics, (2002), v
E85-C(10), 1745-1749, 10 refs.
ISSN: 0916-8524 CODEN: IELEEEJ
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Japan
LANGUAGE: English
AVAILABILITY: INIST-26604

AN 2003-0126783 PASCAL

AB The effects of an intermediate layer of carbon on the structural and magnetic properties of a CoCrPtTa recording layer were investigated in double-layered perpendicular magnetic recording media with either amorphous CoTaZr or crystalline FeAlSi as soft magnetic backlayers. Introducing a thin layer of carbon enhanced the perpendicular magnetic anisotropy with both soft magnetic backlayers. This result suggests that the introduction of a non-magnetic intermediate layer is useful in improving the basic magnetic properties of the CoCr-alloy recording layer even when an amorphous soft magnetic backlayers is used.

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ACCESSION NUMBER: 2002-0062520 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2002 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Observation of magnetic interaction between the soft magnetic and the recording layers in double-layer perpendicular media
Selected Papers from the Eighth Joint Magnetism and Magnetic Materials-International Magnetism Conference (MMM-Intermag), San Antonio, TX, January 7-11, 2001
AUTHOR: HONDA Yukio; TANAHASHI Kiwamu; HIRAYAMA Yoshiyuki; KIKUKAWA Atsushi; FUTAMOTO Masaaki
CORPORATE SOURCE: Central Research Laboratory, Hitachi Ltd, Kokubunji, Tokyo 185-8601, Japan
SOURCE: IEEE transactions on magnetism, (2001), 37(4, PART1), 1315-1318, 7 refs.
Conference: 8 Joint MMM-Intermag Conference, San Antonio, TX (United States), 7 Jan 2001
ISSN: 0018-9464 CODEN: IEMGAQ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222H6, 354000099196490260

AN 2002-0062520 PASCAL

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AB Magnetic force microscopy was used to study the magnetic interaction in

double-layer perpendicular media between the CoCrPt recording layer and the CoTaZr soft magnetic layer by observing the magnetization structure from the soft magnetic layer side. A strong magnetic interaction between the two layers was observed when the layers were in direct contact. Introducing a thin nonmagnetic layer between the two magnetic layers reduced the magnetic interaction and resulted in the reduction of the media noise of double-layer perpendicular media.

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ACCESSION NUMBER: 2002-0139606 PASCAL

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TITLE (IN ENGLISH): Micro/nanomechanical and tribological studies of bulk and thin-film materials used in magnetic recording heads

Proceedings of the 28th International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April 30-May 4 2001

AUTHOR: XIAODONG LI; BHUSHAN Bharat MITTERER Christian (ed.); PIQUE Alberto (ed.); MARCHEV Krassimir (ed.); SCHNEIDER Jochen M. (ed.); VOEVODIN Andrey A. (ed.)

CORPORATE SOURCE: Computer Microtribology and Contamination Laboratory, Department of Mechanical Engineering, The Ohio State University, 206 West 18th Avenue, Columbus, OH 43210-1107, United States

The University of Leoben, Department of Physical Metallurgy and Materials Testing, Franz Josef Strasse 18, 8700 Leoben, Austria; US Naval Research Laboratory, Code 6372, 4555 Overlook Ave SW, Washington DC 20375, United States; The Gillette Company, Gillette Advanced Technology Center, US, One Gillette Park, Boston MA 02127-1096, United States; Department of Physics IFM, Linköping University, 58183 Linköping, Sweden; Air Force Research Laboratory, AFRL/MLBT, Bldg. 654, 2941 P Street, WPAFB, OH 45433-7750, United States

SOURCE: Thin solid films, (2001), 398-99(1), 313-319, 11 refs. Conference: 28 International Conference on Metallurgical Coatings and Thin Films, San Diego, California (United States), 30 Apr 2001 ISSN: 0040-6090 CODEN: THSFAP

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Switzerland

LANGUAGE: English

AVAILABILITY: INIST-13597, 354000094314620530

AN 2002-0139606 PASCAL

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AB Micro/nanomechanical characterization of the bulk Al.sub.20.sub.3-TiC and Ni-Zn ferrite, and thin films of Co-Zr-Ta and Al.sub.20.sub.3 used in magnetic recording heads have been carried out. Hardness, elastic modulus and scratch resistance of these materials were measured by nanoindentation and microscratching using a nanoindenter. Fracture toughness was measured by indentation using cube corner and Vickers indenters. Friction and wear properties for these materials were measured using an accelerated ball-on-flat tribometer. Al.sub.20.sub.3-TiC shows the highest hardness, elastic modulus and scratch resistance as well as the lowest wear damage, followed by the Ni-Zn ferrite, Al.sub.20.sub.3 films, and Co-Zr-Ta film. The Co-Zr-Ta film exhibits the highest fracture

toughness, followed by the Al.sub.20.sub.3-TiC, Al.sub.20.sub.3 films and Ni-Zn ferrite. There exists a good correlation between mechanical properties and wear damage. Higher mechanical properties result in less wear damage. In general, the bulk Al.sub.20.sub.3-TiC and Ni-Zn ferrite show lower damage than the Co-Zr-Ta and Al.sub.20.sub.3 films. For the thin films studied, the Al.sub.20.sub.3 films show higher mechanical properties and less scratch and wear damage.

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ACCESSION NUMBER: 2001-0486794 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Improvement of the crystallographic orientation of double-layered perpendicular recording media by using CoCr (Mo)/Cu intermediate layers
Proceedings of the fifth Perpendicular Magnetic Recording Conference (PMRC 2000), Sendai, Japan, 23-26 October 2000
AUTHOR: TAMAI Ichiro; YAMAMOTO T.; KIKUKAWA A.; TANAHASHI K.; ISHIKAWA A.; FUTAMOTO M.
CORPORATE SOURCE: MURAOKA Hiroaki (ed.); YAMAMOTO Setsuo (ed.)
Central Research Laboratory, Hitachi, Ltd., 1-280 Higashi-koigakubo, Kokubunji, Tokyo 185-8601, Japan
Tohoku University, Japan; Yamaguchi University, Japan
SOURCE: Journal of magnetism and magnetic materials, (2001), 235(1-3), 78-81, 4 refs.
Conference: 5 PMRC 2000 Perpendicular Magnetic Recording Conference, Sendai (Japan), 23 Oct 2000
ISSN: 0304-8853 CODEN: JMMMDC
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-17230, 354000096427200140

AN 2001-0486794 PASCAL
CP Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.
AB We have introduced intermediate layers of CoCr/Cu and CoCrMo/Cu between a CoCrPtB recording layer and a soft-magnetic CoTaZr underlayer.
The combination of the FCC-Cu first-intermediate layer and the HCP-CoCrMo second-intermediate layer was found to enhance the c-axis vertical orientation of the CoCrPtB recording layer. In media with intermediate layers of CoCrMo/Cu, the thickness of the intermediate layers can be reduced without sacrificing good magnetic properties, and this leads to high resolutions.

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ACCESSION NUMBER: 2001-0486793 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Effects of thin carbon intermediate layer on magnetic and structural properties of perpendicular recording media
Proceedings of the fifth Perpendicular Magnetic Recording Conference (PMRC 2000), Sendai, Japan, 23-26 October 2000
AUTHOR: NAKAGAWA H.; HONDA Y.; KIKUKAWA A.; TANAHASHI K.; ISHIKAWA A.; FUTAMOTO M.
CORPORATE SOURCE: MURAOKA Hiroaki (ed.); YAMAMOTO Setsuo (ed.)
Hitachi, Ltd., Central Research Laboratory, 1-280

Higashi-koigakubo, Kokubunzi-shi, Tokyo 185-8601,
Japan
Tohoku University, Japan; Yamaguchi University, Japan
SOURCE: Journal of magnetism and magnetic materials, (2001),
235(1-3), 73-77, 6 refs.
Conference: 5 PMRC 2000 Perpendicular Magnetic
Recording Conference, Sendai (Japan), 23 Oct 2000
ISSN: 0304-8853 CODEN: JMMMDC
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-17230, 354000096427200130

AN 2001-0486793 PASCAL
CP Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.
AB CoCrPt/CoCr/carbon films were sputter-deposited on CoTaZr
soft-magnetic underlayers and the effects of a carbon intermediate layer
on magnetic and recording properties were investigated by changing a
heating sequence in sample preparations. A heating process before a CoCr
deposition was needed to obtain a high perpendicular coercivity. The
carbon diffusion into a CoCr layer during its deposition led to small
crystal grains in the CoCr layer and thereby the CoCrPt layer.
Consequently, a high perpendicular coercivity was obtained, which was
considered due to the change in magnetization process from a wall motion
to a coherent rotation. The use of a thin (1-5 nm) carbon intermediate
layer was found to be effective to obtain both low noise and high
resolution.

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ACCESSION NUMBER: 1999-0183311 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1999 American Institute of
Physics. All rights reserved.
TITLE (IN ENGLISH): Head parameter sensitivity study of the intrinsic
field reversal time
AUTHOR: GEORGE Peter K.; JURY Jason C.; JUDY Jack
CORPORATE SOURCE: St. Cloud State University, Department of Electrical
Engineering, St. Cloud, Minnesota 56301-4498;
University of Minnesota, Electrical and Computer
Engineering, Minneapolis, Minnesota 55455-0154
SOURCE: Journal of applied physics, (1999-04-15), 85(8),
4979-4981
ISSN: 0021-8979 CODEN: JAPIAU
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-126
AN 1999-0183311 PASCAL
CP Copyright .COPYRGT. 1999 American Institute of Physics. All rights
reserved.
AB Studies to establish the key head sensitivity parameters affecting the
intrinsic field reversal time are reported. The effect of supply voltage,
eddy current damping, head moment, and turns are investigated using the
nonlinear, eddy current damped, thin-film write head model proposed by
Klaassen and Hirko [IEEE Trans. Magn. 32, 3524 (1996)]. The model is
realized using PSPICE circuit simulation. Eddy current time constant
dependencies derived by Wood, Williams, and Hong [IEEE Trans. Magn. 26,
2954 (1990)] are used to explore materials with magnetizations ranging
from $4\pi M_{\text{sub}} = 10-20$ kG, resistivities of 25 and 125
 $\mu\Omega\text{-cm}$ and heads with 10-15 turns. Confirmation of the above

writer sensitivities has been investigated using a short yoke 37 turn, high moment, low eddy current CoTaZr inductive head. From the experimentally determined model parameters, rise time results are computed for an improved 10 turn writer design. The results are shown to approach or exceed the limiting dynamics of the spin system. .COPYRGT. 1999 American Institute of Physics.

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ACCESSION NUMBER: 2000-0018449 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2000 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Frequency and transient response of Yoke flux for 45/55 NiFe and CoTaZr thin film write heads 1999 International Magnetism Conference, INTERMAG '99, Kyongju, Korea, May 18-21, 1999. Part I
AUTHOR: JURY J.; GEORGE P.; JUDY J. H.
RAMANAN V. R. (ed.); WELLER Dieter (ed.); TAEK DONG LEE (ed.); BULARZIK Joseph H. (ed.); INOMATA Koichiro (ed.); SUNG-CHUL SHIN (ed.); PETRIE Edward M. (ed.); MIURA Yoshimasa (ed.); PASQUALE Massimo (ed.); COCHRAN Dewey E. (ed.)
CORPORATE SOURCE: The Center for Micromagnetics and Information Technologies (MINT), University of Minnesota, Minneapolis, MN 55455, United States; Electrical Engineering, St. Cloud State University, St. Cloud MN 56301, United States
ABB Power T&D Company, United States; IBM, United States; Korea Advanced Institute of Science and Technology, Korea, Republic of; Magnetism International, United States; Toshiba Corporation, Japan; Fujitsu Limited, Japan; Istituto Elettrotecnico Nazionale Galileo Ferraris, Italy; Naval Research Laboratory, United States
The Korean Magnetism Society, Korea, Republic of (patr.); IEEE. Magnetism Society, United States (patr.)
SOURCE: IEEE transactions on magnetism, (1999), 35(5, PART1), 2508-2510, 3 refs.
Conference: 1999 International Magnetism Conference (INTERMAG '99), Kyongju (Korea, Republic of), 18 May 1999
ISSN: 0018-9464 CODEN: IEMGAQ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222H6, 354000087972360920
AN 2000-0018449 PASCAL
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L8 ANSWER 19 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
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ACCESSION NUMBER: 1998-0323284 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Influence of microstructure on thermal stability of spin-valve multilayers
AUTHOR: MAESAKA Akihiro; SUGAWARA Nobuhiro; OKABE Akihiko; ITABASHI Masao
CORPORATE SOURCE: Research Center, Sony Corporation, 174 Fujitsuka-cho,

SOURCE: Hodogaya-ku, Yokohama 240, Japan
 Journal of applied physics, (1998-06-15), 83(12),
 7628-7634
 ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: United States
 LANGUAGE: English
 AVAILABILITY: INIST-126

AN 1998-0323284 PASCAL
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AB We investigated the influence of microstructure on the thermal degradation of giant magnetoresistance ΔR on spin-valve multilayers constructed by IrMn/CoFe/Cu/CoFe/NiFe, using transmission electron microscopy and energy dispersive x-ray spectroscopy. We found that the main cause of thermal degradation at about 250 °C is the interlayer diffusion along the grain boundary, which had more influence on ΔR than the compositional mixing at the multilayer interface. The polycrystal spin-valve multilayers deposited on Ta and CoZrTa underlayers had rapid degradation of ΔR above the annealing temperature of 225 °C, resulting in 16% and 20% degradation at 275 °C, respectively. A Ta underlayer with amorphous structure has the effect of reducing the density of the grain boundary by improving the surface smoothness, as compared with a crystalline CoZrTa underlayer, leading to slightly less degradation. By contrast, a spin-valve epitaxial layer deposited on a MgO(111) substrate brought about a marked reduction of the thermal degradation of ΔR to within 3%, even at 275 °C, due to a remarkable reduction of crystallographic defects like the grain boundary. .COPYRGT. 1998 American Institute of Physics.

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ACCESSION NUMBER: 1998-0518535 PASCAL
 COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 INIST-CNRS. All rights reserved.

TITLE (IN ENGLISH): Fabrication of film heads with high moment materials
 AUTHOR: JONES R. E. JR
 CORPORATE SOURCE: Data Storage Systems Center, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA 15213-3890, United States
 Institute of Mechanics and Materials, United States (patr.); Acta Metallurgica Inc., United States (patr.)

SOURCE: Acta materialia, (1998), 46(11), 3805-3812, 18 refs.
 Conference: Workshop on "Coupled Property Issues in Integrated Microstructures", Monterey, California (United States), 4 Apr 1997
 ISSN: 1359-6454

DOCUMENT TYPE: Journal; Conference
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: United States
 LANGUAGE: English
 AVAILABILITY: INIST-7423, 354000077159320110

AN 1998-0518535 PASCAL
 CP Copyright .COPYRGT. 1998 INIST-CNRS. All rights reserved.

AB The need for film heads made with high moment magnetic materials stems from the desire to write high coercivity recording media high provide short transition zones between magnetized regions. enabling high recording densities. A high magnetic moment delays saturation near the gap edges and an associated broadening of the head's writing field. Many

different high moment film materials are under consideration. These include high moment permalloy films (Ni.sub.4.sub.5Fe.sub.5.sub.5). amorphous cobalt-based films (CoZrTa. CoZrRe), and iron-based films (Fe(N), FeAlN). The advantages and disadvantages of each of these materials will be reviewed in terms of manufacturing deposition techniques and important magnetic and nonmagnetic properties, such as hardness and wear. Manufacturing problems include the need to maintain properties while depositing films on sloping head surfaces and to control the head's trackwidth dimension to submicron tolerances.

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ACCESSION NUMBER: 1996-0355587 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Induced magnetic anisotropy in Co-TM-Zr (TM=Nb, Ta, Mo, W and Ni) amorphous sputtered films
TITLE: En Japonais
AUTHOR: OTOMO S.
CORPORATE SOURCE: Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan
SOURCE: Nippon Kinzoku Gakkaishi : (1952), (1996), 60(5), 529-536, 32 refs.
ISSN: 0021-4876 CODEN: NIKGAV
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Japan
LANGUAGE: Japanese
SUMMARY LANGUAGE: English
AVAILABILITY: INIST-7306, 354000060360660140
AN 1996-0355587 PASCAL
CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.
AB The dependence of induced anisotropy on the composition of Co-TM-Zr (TM = Nb, Ta, Mo, W, and Ni) amorphous sputtered films is investigated. The anisotropy field, H.sub.k of the amorphous films increases with increasing the saturation magnetic flux density, B.sub.s The anisotropy field, H.sub.k is the largest in Co-Ni-Zr films and the strength of H.sub.k decreases in the order of Co-Ta-Zr, Co-W-Zr, Co-Mo-Zr and Co-Nb-Zr films, when H.sub.k is compared among the films with the same B.sub.s. The composition dependence of induced anisotropy in Co-TM-Zr films can be understood by the pair-ordering model assuming that a pseudodipole interaction between a cobalt atom pair depends on the magnetic moment of the Cobalt atom. The relaxation time of anisotropy changes in Co-Nb-Zr and Co-W-Zr films increases by 2 to 3 orders of magnitude by pre-annealing at 400° C, and the activation energy of 3.2 to 3.4 x 10.sup.-.sup.1.sup.9 J (2.0 to 2.1 eV), being one of the highest activation energies for the amorphous alloys, is determined by the analysis based on a Gaussian distribution for the relaxation time.

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ACCESSION NUMBER: 1997-0211779 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1997 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Micromechanical and tribological characterization of alternate pole tip materials for magnetic recording heads
Macro- and micro- tribology and mechanics of magnetic storage systems
AUTHOR: PATTON S. T.; BHUSHAN B.
BHUSHAN Bharat (ed.)

CORPORATE SOURCE: Computer Microtribology and Contamination Laboratory,
Department of Mechanical Engineering, The Ohio State
University, Columbus, OH 43210, United States
Computer Microtribology and Contamination Laboratory,
Department of Mechanical Engineering, The Ohio State
University, Columbus, OH 43210-1107, United States

SOURCE: Wear, (1996), 202(1), 99-109, 33 refs.
ISSN: 0043-1648 CODEN: WEARAH

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Switzerland

LANGUAGE: English

AVAILABILITY: INIST-8579, 354000062839810090

AN 1997-0211779 PASCAL

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AB Pole tip recession or PTR (relative wear of the pole tip with respect to
the air bearing surface) causes signal loss when using inductive heads.
Loss of signal caused by spacing between a head gap and the recording
medium is magnified in high-density short wavelength recording. Nickel
iron (NiFe) is the most commonly used pole material. NiFe is softer than
the head substrate material (typically Ni-Zn ferrite or
Al.sub.20.sub.3-TiC) which leads to PTR as a result of differential wear
of the materials. Alternate pole tip materials which are more wear
resistant and superior in magnetic properties (such as high saturation
magnetization), as compared with NiFe, need to be developed. In this
research, NiFe, cobalt zirconium tantalum (CoZrTa) and iron aluminum nitride (FeAlN) materials were studied.
In the first phase of this study, micromechanical characterization of the
three pole tip materials, the alumina (Al.sub.20.sub.3) insulating
under/overcoat and gap material and the Al.sub.20.sub.3-TiC substrate was
conducted using a depth-sensing nanoindenter. The nanohardness of NiFe,
CoZrTa and Al.sub.20.sub.3 are similar and about one half that of
FeAlN, and the hardness of the Al.sub.20.sub.3-TiC substrate is about
twice that of FeAlN. Microscratch studies showed that the critical load
required to cause failure of the NiFe and CoZrTa films are
similar and about one fourth that of FeAlN, and the critical load for
FeAlN is comparable with that of the Al.sub.20.sub.3 and
Al.sub.20.sub.3-TiC substrate. Thus, FeAlN is superior in mechanical
properties to NiFe and CoZrTa. In the second phase of this
study, dummy tape heads fabricated with the three pole materials were run
against metal particle (MP) tape in a linear tape drive. The PTR was
measured by atomic force microscope (AFM) imaging before and after the
sliding tests. Any nonuniformities in the thin-film region gets removed
in the first few kilometres of sliding. FeAlN poles exhibited a low (.eqv
sim. 10 nm) and constant PTR over 1 000 km of tape sliding distance,
whereas the NiFe and CoZrTa poles exhibited growth in recession
to about 30 and 40 nm, respectively, over the same sliding distance. The
superior wear resistance and high saturation magnetization of FeAlN are
ideal for high-density thin-film inductive heads.

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ACCESSION NUMBER: 1995-0554165 PASCAL

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TITLE (IN ENGLISH): Metal core recession and heat stain studies of MIG
heads sliding against cobalt-doped gamma iron oxide
and metal particle tapes

AUTHOR: TSUCHIYA T.; BHARAT BUSHAN

CORPORATE SOURCE: Ohio State univ., dep. mechanical eng., computer
microtribology contamination lab., Columbus OH

SOURCE: 43210-1107, United States
 Tribology transactions, (1995), 38(4), 941-949, 18
 refs.
 Conference: ASME/Society of Tribologists and
 Lubrication Engineers STLE. Tribology conference,
 Lahaina HI (United States), 16 Oct 1994
 ISSN: 1040-2004

DOCUMENT TYPE: Journal; Conference
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: United States
 LANGUAGE: English
 AVAILABILITY: INIST-8977, 354000050220180240

AN 1995-0554165 PASCAL
 CP Copyright .COPYRGT. 1995 INIST-CNRS. All rights reserved.
 AB Metal-in-gap (MIG) heads are commonly used for high-density magnetic
 recording. Metal core recession and head stains increase the gap between
 the tape and the head, resulting in signal loss. In this study,
 accelerated sliding wear tests of Co- γ Fe.sub.20.sub.3 and metal
 particle (MP) tapes against MIG heads made of three different amorphous
 and nanocrystalline metals were conducted under various operating
 conditions. Metal core recess and propensity for head staining were
 measured. The degree of tape contact with a recessed core was also
 measured by pressing the tape against a glass slide with Cr grids and
 using an optical interference technique. The authors found that the core
 recess was about the same for all three core metals. Core recess by MP
 tape was larger than that by oxide tape. The tape speed appeared to have
 little effect on the recess value. The authors also found that
 significant recess may occur during initial contouring of the head
 surface ; however, after sliding for about 250 km, core recess reaches a
 steady-state value which may be either higher or lower than the initial
 values. The mechanism of core recession was studied. The authors believe
 that core recession occurs as a consequence of the debris trapped between
 the tape and the core, in addition to that caused by some tape contact.
 Formation of head stains was observed in all combinations. The stains
 formed on the metal cores were heaviest for CoNbZr metal, followed by
 CoTaZr and FeTaC. Co- γ Fe.sub.20.sub.3 tape produced a more
 severe stain than the MP tape. The apparent roughening of head rubbing
 surface observed for CoNbZr heads sliding against Co-
 γ Fe.sub.20.sub.3 tape was due to the formation of stains.

L8 ANSWER 24 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
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ACCESSION NUMBER: 1994-0269335 PASCAL
 COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 American Institute of
 Physics. All rights reserved.
 TITLE (IN ENGLISH): Magnetic domain structures and dynamics of
 CoTaZr/Cr multilayered films
 AUTHOR: YAMAMOTO Kazuhiro; MATSUYAMA Hideo; HAMAKAWA
 Yoshihiro; KITADA Masahiro
 CORPORATE SOURCE: Central Research Laboratory, Hitachi Ltd., Kokubunji,
 Tokyo 185, Japan
 SOURCE: Journal of Applied Physics, (1994-03-15), 75(6),
 2998-3001
 ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: United States
 LANGUAGE: English
 AVAILABILITY: INIST-126

AN 1994-0269335 PASCAL
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AB The permeability, domain structure, and dynamic magnetization change of CoTaZr/Cr multilayered stripes are studied. The frequency dependence of permeability is improved by lamination with Cr layers, which eliminates the closure domain structure. An edge curling wall (ECW) is observed near the edge of the multilayered stripes. The width of the ECW agrees well with calculations and is independent of stripe width. The magnetization in the ECW is difficult to rotate by the external magnetic field; therefore, the permeability of a narrow stripe is less than that of wider stripes.

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ACCESSION NUMBER: 1994-0679453 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Development of precision three-points bending machine for measuring Young's modulus of thin films for electronic devices
TITLE: En Japonais
AUTHOR: HASHIMOTO K.; SAKANE M.; OHNAMI M.; YOSHIDA T.
CORPORATE SOURCE: Ritsumeikan univ., Kusatsu 525-77, Japan
SOURCE: Zairyo, (1994), 43(489), 703-709, 17 refs.
ISSN: 0514-5163 CODEN: ZARYAQ
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Japan
LANGUAGE: Japanese
SUMMARY LANGUAGE: English
AVAILABILITY: INIST-12572, 354000047095080180
AN 1994-0679453 PASCAL
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L8 ANSWER 26 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
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ACCESSION NUMBER: 1994-0609132 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Flux propagation of single-layered and six-layered thin film magnetic heads
AUTHOR: NARUMI S.-I.; AIHARA M.; FUKUI H.; SUDO S.; MITSUOKA K.; IMAGAWA T.
CORPORATE SOURCE: Hitachi Ltd, Hitachi res. lab., Hitachi, Ibaraki 319-12, Japan
SOURCE: IEEE, New York NY, United States (patr.)
IEEE transactions on magnetics, (1993), 29(6, p.1), 2560-2562, 10 refs.
Conference: INTERMAG'93 : international magnetism conference, Stockholm (Sweden), 13 Apr 1993
ISSN: 0018-9464 CODEN: IEMGAQ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-222 H6, 354000048692370670
AN 1994-0609132 PASCAL
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L8 ANSWER 27 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
on STN

ACCESSION NUMBER: 1993-0384457 PASCAL

TITLE (IN ENGLISH): High frequency characteristics of multi-layered
CoTaZr cores for thin heads

AUTHOR: ARAI R.; MITSUOKA K.; FUKUI H.; AKIMOTO H.; NARISHIGE
S.
MULLER Marcel W (pref.)

CORPORATE SOURCE: Hitachi Ltd., Hitachi res. lab., Hitachi, Ibaraki
319-12, Japan
Washington univ., dep. electrical eng., Saint Louis MO
63130, United States

SOURCE: IEEE transactions on magnetics, (1992), 28(5, p.2),
2115-2117, 7 refs
Conference: 1992 International magnetics conference
(INTERMAG'92), Saint Louis MO (United States), 13 Apr
1992
ISSN: 0018-9464 CODEN: IEMGAQ

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-222 H6, 354000031611720070

AN 1993-0384457 PASCAL

L8 ANSWER 28 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
on STN

ACCESSION NUMBER: 1992-0082377 PASCAL

TITLE (IN ENGLISH): 180° wall movement in a magnetic thin-film
closure domain structure in a high-frequency field

AUTHOR: ISHIKAWA C.; SASAKI S.; MORIWAKI E.; HAMAKAWA Y.;
SHIIKI K.; SHINAGAWA K.

CORPORATE SOURCE: Hitachi Ltd, cent. res. lab., Tokyo 185, Japan

SOURCE: Journal of applied physics, (1991), 70(4), 2259-2263,
7 refs.
ISSN: 0021-8979 CODEN: JAPIAU

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-126, 354000010013050540

AN 1992-0082377 PASCAL

AB The dynamic behavior of a 180^{sup.o} wall was observed in a Co-based
amorphous alloy film using a Kerr microscope. As a function of an
anisotropy direction the amplitude of the 180^{sup.o} wall movement was
measured with the drive field applied transverse to the 180° wall
of the closure domain structure. The anisotropy direction was varied by
magnetic heat treatment. It was found that the 180^{sup.o} wall moved
independently of the anisotropy direction, that is, the 180^{sup.o} wall
movement is related only to the applied high-frequency field

L8 ANSWER 29 OF 29 PASCAL COPYRIGHT 2008 INIST-CNRS. ALL RIGHTS RESERVED.
on STN

ACCESSION NUMBER: 1990-0001545 PASCAL

TITLE (IN ENGLISH): Analysis of domain structure by calculating
magnetostatic energy for magnetic thin film

TITLE (IN FRENCH): Analyse de la structure des domaines en calculant
l'energie magnetostatique pour les couches minces
magnetiques

AUTHOR: SAKA C.; SHIIKI K.; SHINAGAWA K.

CORPORATE SOURCE: Hitachi ltd., Tokyo 185, Japan

SOURCE: Journal of applied Physics, (1989), 66(3), 1285-1290,
5 refs.
ISSN: 0021-8979

DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: CNRS-126

AN 1990-0001545 PASCAL

ABFR Determination d'une methode permettant de calculer l'energie magnetostatique par une approximation bidimensionnelle. Analyse, a partir de l'energie magnetostatique, de la structure des domaines d'une couche mince magnetique. L'energie E.sub.S est calculee comme le produit du champ demagnetisant H.sub.d et de l'aimantation M. Comme H.sub.d varie a l'interieur d'un domaine, E.sub.S doit etre calculee dans un nombre de regions sousdivisees, dans lequel H.sub.d est uniforme. Calcul de la direction d'aimantation correspondant a l'energie minimale. Application a l'alliage CoTaZr

=> (nickel or Ni)(15A)(substrate or layer)

L9 66 FILE AGRICOLA
L10 152 FILE BIOTECHNO
L11 108 FILE CONFSCI
L12 18 FILE HEALSAFE
L13 223 FILE LIFESCI
L14 8443 FILE PASCAL

TOTAL FOR ALL FILES

L15 9010 (NICKEL OR NI)(15A)(SUBSTRATE OR LAYER)

=> l15 and (sensor or microarray or microdevice or microchip or chip)

L16 3 FILE AGRICOLA
L17 4 FILE BIOTECHNO
L18 1 FILE CONFSCI
L19 0 FILE HEALSAFE
L20 5 FILE LIFESCI
L21 339 FILE PASCAL

TOTAL FOR ALL FILES

L22 352 L15 AND (SENSOR OR MICROARRAY OR MICRODEVICE OR MICROCHIP OR CHIP)

=> dup rem

ENTER L# LIST OR (END):116-120

L19 HAS NO ANSWERS

PROCESSING COMPLETED FOR L16

PROCESSING COMPLETED FOR L17

PROCESSING COMPLETED FOR L18

PROCESSING COMPLETED FOR L19

PROCESSING COMPLETED FOR L20

L23 12 DUP REM L16-L20 (1 DUPLICATE REMOVED)

=> d l23 ibib abs total

L23 ANSWER 1 OF 12 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.
(2008) on STN

ACCESSION NUMBER: 2008:105254 AGRICOLA

DOCUMENT NUMBER: IND44085534

TITLE: Application of a quartz crystal nanobalance and principal component analysis for the detection and determination of histidine.

AUTHOR(S): Shojaei, Maryam; Mirmohseni, Abdolreza; Farbodi, Maryam
AVAILABILITY: DNAL (QD71.F7)
SOURCE: Analytical and bioanalytical chemistry, 2008 Aug. Vol. 391, no. 8 p. 2875-2880
Publisher: Berlin/Heidelberg : Springer-Verlag
ISSN: 1618-2642
NOTE: Includes references
DOCUMENT TYPE: Article; (ELECTRONIC RESOURCE)
FILE SEGMENT: Non-US
LANGUAGE: English

AB The aim of the present investigation was to develop a biosensor based on a quartz crystal nanobalance (QCN) for the detection of histidine (His). A thin layer of nickel was electrochemically deposited over the gold crystal electrode and exposed to H₂O₂ to form nickel oxide. The composite electrode was then used to determine His. The frequency shifts were linear with respect to the concentration of His in solution. His can be measured in the range of 100-2000 mg L⁻¹ (British pound). A lower limit of detection of 48 mg L⁻¹ (British pound) and a sensitivity factor of 0.0307 Hz/mg L⁻¹ (British pound) was obtained. Some possible interferences were checked for, and the performance of the sensor was found to be unaffected by any interference except for those from arginine, cysteine and NaH₂PO₄. Principal component analysis (PCA) was used to process the frequency response data of the single piezoelectric crystal at various times, considering the different adsorption-desorption dynamics of His and the interfering compounds. Over 85% of the variance in the data was explained by two principal components. A score plot of the data for the first two PCs showed that the modified QCN yields favorable identification and quantification performances for His and the interfering compounds.

L23 ANSWER 2 OF 12 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2008) on STN

ACCESSION NUMBER: 2008:34761 AGRICOLA
DOCUMENT NUMBER: IND44015784
TITLE: Electrophoresis microchips with sharp inlet tips, for contactless conductivity detection, fabricated by in-situ surface polymerization.
AUTHOR(S): Chen, Yi; Yang, Pengyuan; Li, Jianhua; Chen, Di; Chen, Gang
SOURCE: Analytical and bioanalytical chemistry, 2006 Feb. Vol. 384, no. 3 p. 683-691
Publisher: Berlin/Heidelberg : Springer-Verlag
ISSN: 1618-2642
NOTE: Includes references
DOCUMENT TYPE: Article; (ELECTRONIC RESOURCE)
FILE SEGMENT: Non-US
LANGUAGE: English

AB A novel method based on in-situ surface polymerization of methyl methacrylate (MMA) has been developed for rapid fabrication of poly(methyl methacrylate) (PMMA) electrophoresis microchips with sharp inlet tips. Prepolymerized MMA containing an ultraviolet (UV) initiator was directly sandwiched between a nickel template and a PMMA plate. The image of the relief on the nickel template was precisely replicated in the synthesized PMMA layer on the surface of the commercially available PMMA plate during UV-initiated polymerization at room temperature. The chips were subsequently assembled by thermal bonding of channel plates and cover sheets. The sample was directly introduced into the separation channel through a sharp inlet tip, which

was placed in the sample vial, without use of an injection cross. The attractive performance of the novel PMMA microchips has been demonstrated by using contactless conductivity detection for determination of several inorganic ions. Such rapid and simple sample introduction leads to highly reproducible signals with relative standard deviations of less than 5% for peak responses. These new approaches significantly simplify the process of fabricating PMMA devices and show great promise for high-speed microchip analysis. [graphic removed]

L23 ANSWER 3 OF 12 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2007:32186 LIFESCI

TITLE: Nano nickel oxide/nickel incorporated nickel composite coating for sensing and estimation of acetylcholine

AUTHOR: Shibli, S.M.A.; Beenakumari, K.S.; Suma, N.D.

CORPORATE SOURCE: Department of Chemistry, University of Kerala, Kariavottom Campus, Trivandrum, Kerala 695581, India; E-mail: smashibli@yahoo.com

SOURCE: Biosensors and Bioelectronics [Biosensors Bioelectron.], (20061200) vol. 22, no. 5, pp. 633-638. ISSN: 0956-5663.

DOCUMENT TYPE: Journal

FILE SEGMENT: W

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Pure nickel electrodes can be used as biosensors especially for sensing and estimating acetylcholine neurotransmitter. In the present work, a good electrochemical sensor was developed by electroplating nano nickel oxide reinforced nickel on graphite substrate. The morphology of the working electrode surface was studied by using a scanning electron microscope (SEM). The electrochemical and biological performance of the modified electrode was characterized by polarization studies in different media. The present modified electrode showed good sensing performance with a response time as low as 8 s during sensing and estimation of acetylcholine. The sensitivity of the modified electrode was $34.88 \mu A / (\mu M \text{ cm}^2)$.

L23 ANSWER 4 OF 12 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2005:60216 LIFESCI

TITLE: Microarrays based on affinity-tagged single-chain Fv antibodies: Sensitive detection of analyte in complex proteomes

AUTHOR: Wingren, Christer; Steinhauer, Cornelia; Ingvarsson, Johan; Persson, Erik; Larsson, Katrin; Borrebaeck, Carl A. K.

CORPORATE SOURCE: Department of Immunotechnology, Lund University, Lund, Sweden; E-mail: carl.borrebaeck@immun.lth.se

SOURCE: Proteomics, (20050500) vol. 5, no. 5, pp. 1281-1291. ISSN: 1615-9853.

DOCUMENT TYPE: Journal

FILE SEGMENT: W3

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Protein-based microarrays are among the novel class of rapidly emerging proteomic technologies that will allow us to efficiently perform global proteome analysis. However, the process of designing adequate protein microarrays is a major inherent problem. In this study, we have evaluated a protein microarray platform based on nonpurified affinity-tagged single-chain (sc) Fv antibody fragments to generate proof-of-principle and to demonstrate the specificity and sensitivity of the array design. To this end, we used our human recombinant scFv antibody library genetically constructed around one framework, the n-CoDeR library containing 2×10^{10} clones, as a

source for our probes. The probes were immobilized via engineered C-terminal affinity tags, his-or myc-tags, to either Ni super(2+)-coated slides or anti-tag antibody coated substrates. The results showed that highly functional microarrays were generated and that nonpurified scFvs readily could be applied as probes. Specific and sensitive microarrays were obtained, providing a limit of detection in the pM to fM range, using fluorescence as the mode of detection. Further, the results showed that spotting the analyte on top of the arrayed probes, instead of incubating the array with large sample volumes (333 pL vs. 40 μ L), could reduce the amount of analyte required 4000 times, from 1200 attomole to 300 zeptomole. Finally, we showed that a highly complex proteome, such as human sera containing several thousand different proteins, could be directly fluorescently labeled and successfully analyzed without compromising the specificity and sensitivity of the antibody microarrays. This is a prerequisite for the design of high-density antibody arrays applied in high-throughput proteomics.

L23 ANSWER 5 OF 12 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2004:110239 LIFESCI

TITLE: A Metal-Chelating Piezoelectric Sensor
Chip for Direct Detection and Oriented
Immobilization of PolyHis-Tagged Proteins

AUTHOR: Chen, Hsiu-Mei; Wang, Wei-Cheng; Chen, Sheng-Horng

CORPORATE SOURCE: Department of Chemical Engineering, National Taiwan
University of Science and Technology, Taipei 106, Taiwan;
E-mail: hsiumei@ch.ntust.edu.tw

SOURCE: Biotechnology Progress [Biotechnol. Prog.], (20040800) vol.
20, no. 4, pp. 1237-1244.
ISSN: 8756-7938.

DOCUMENT TYPE: Journal

FILE SEGMENT: W2

LANGUAGE: English

SUMMARY LANGUAGE: English

AB A metal-chelating piezoelectric (PZ) chip for direct detection and controlled immobilization of polyHis-tagged proteins has been demonstrated. The chip was prepared by covalently binding a hydrogel matrix complex of oxidized dextran and nitrilotriacetic acid (NTA) ligand onto an activated alkanethiol-modified PZ crystal. The resulting chip effectively captured Ni super(2+) ions onto its NTA surface, as disclosed by the resonant frequency shift of the crystal and an X-ray photoelectron spectroscopy analysis. The real-time frequency analysis revealed that the bare NTA chip was nonfouling, regenerable, and highly reusable during continuous repetitive injections of ion solutions and binding proteins. In addition, the chip displayed good long-term reusability and storage stability. The individual binding studies of a polyHis-tagged glutathione-S-transferase and its native untagged form on various metal-charged chips revealed that Co super(2+), Cu super(2+), and Ni super(2+) ions each had different immobilization ability on the NTA surface, as well as their binding ability and selectivity with the tagged protein. As a result, the tagged protein immobilized on the Ni super(2+)-charged chip can actively be bound with its antibody and substrate. Further, the quantitative analyses of the tagged protein in crude cell lysate with a single Ni super(2+)-charged chip and of its substrate with a protein-coated chip were also successfully demonstrated. Therefore, this study initiates the possibilities of oriented, reversible, and universal immobilization of any polyHis-tagged protein and its functional study using a real-time PZ biosensor.

L23 ANSWER 6 OF 12 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2005:7734 LIFESCI

TITLE: Comamonas testosteroni Strain TI as a Potential Base for a Microbial Sensor Detecting Surfactants

AUTHOR: Taranova, L.A.; Fesay, A.P.; Ivashchenko, G.V.; Reshetilov, A.N.; Winther-Nielsen, M.; Emneus, J.

CORPORATE SOURCE: Ovcharenko Institute of Biocolloid Chemistry National Academy of Sciences of Ukraine, Kiev, 252680 Ukraine

SOURCE: Applied Biochemistry and Microbiology [Appl. Biochem. Microbiol.], (20040700) vol. 40, no. 4, pp. 404-408. ISSN: 0003-6838.

DOCUMENT TYPE: Journal

FILE SEGMENT: A; J

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Strain Comamonas testosteroni TI, capable of degrading the nonionic surfactant (NIS) nonylphenoethoxylate (OP-10), was used for constructing a pilot cellular biosensor. The lower NIS detection limit for the biosensor was 0.25 mg/l. We studied the substrate specificity of the biosensor with respect to a wide range of organic compounds: surfactants, polyaromatic compounds (PAC), carbohydrates, alcohols, etc. It was shown that the biosensor based on Comamonas testosteroni TI did not respond to glucose, which was an advantage over the formerly described biosensor based on Pseudomonas rathonis T. The amplitude of the sensor response remained stable for 10 days.

L23 ANSWER 7 OF 12 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN

ACCESSION NUMBER: 2003:36694115 BIOTECHNO

TITLE: Multianalyte immunoassay with self-assembled addressable microparticle array on a chip

AUTHOR: Zhi Z.-L.; Murakami Y.; Morita Y.; Hasan Q.; Tamiya E.

CORPORATE SOURCE: E. Tamiya, School of Materials Science, Japan Adv. Inst. of Sci./Technology, 1-1, Asahidai, Tatsunokuchi, Ishikawa 923-1292, Japan. E-mail: tamiya@jaist.ac.jp

SOURCE: Analytical Biochemistry, (15 JUL 2003), 318/2 (236-243), 32 reference(s)

CODEN: ANBCA2 ISSN: 0003-2697

DOCUMENT TYPE: Journal; Article

COUNTRY: United States

LANGUAGE: English

SUMMARY LANGUAGE: English

AN 2003:36694115 BIOTECHNO

AB This paper describes the random fluidic self-assembly of metallic particles into addressable two-dimensional microarrays and the use of these arrays as a platform for constructing a biochip useful for bioassays. The basic units in the assembly were the microfabricated particles carrying a straightforward visible code and the corresponding array template patterned on a glass substrate. The particles consisted of a hydrophobic and magnetic Ni-polytetrafluoroethylene (PTFE) composite layer on one face, and on the other face a gold layer that was modified for biomolecular attachment. An array template was photoresist-patterned with spatially discrete microwells in which an electrodeposited Ni-PTFE hydrophobic composite layer and a hydrophobic photo-adhesive coating were deposited. The particles, after biomaterial attachment and binding processes in bulk, were self-assembled randomly onto the lubricated bonding sites on the chip substrate, driven by a combination of magnetic, hydrophobic, and capillary interactions. The encoding symbol carried by the particles was used as the signature for the identification of each target/assay attached to the particle

surface. We demonstrate here the utility of microfabricated-encoded particle arrays for conducting multianalyte immunoassays in a parallel fashion with the use of imaging detection. .COPYRGT. 2003 Published by Elsevier Science (USA).

L23 ANSWER 8 OF 12 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.
(2008) on STN DUPLICATE 1

ACCESSION NUMBER: 2001:28429 AGRICOLA
DOCUMENT NUMBER: IND22079952
TITLE: Self-assembling photosynthetic reaction centers on electrodes for current generation.
AUTHOR(S): Nakamura, C.; Hasegawa, M.; Yasuda, Y.; Miyake, J.
SOURCE: Applied biochemistry and biotechnology, Spring 2000. Vol. 84/86 p. 401-408
Publisher: Totowa, N.J. : Humana Press.
CODEN: ABIBDL; ISSN: 0273-2289
NOTE: Proceedings of the Twenty-First Symposium on Biotechnology for Fuels and Chemicals, May 2-6, 1999, Fort Collins, Colorado.
Includes references
PUB. COUNTRY: New Jersey; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Photosynthetic reaction centers (RCs) made from photosynthetic organisms can be used in solar batteries because their molecules cause light-induced charge separation. We present a simple immobilization system of the intact RCs from Rhodobacter sphaeroides on an electrode that uses nickel ligand binding by the hexameric histidine tag on H subunit (HHisRC). The binding constant of HHisRC to the nickel-nitrilotriacetic acid (Ni-NTA) chip measured with a surface plasmon resonance instrument was 1.6×10^8 M⁻¹. HHisRCs were immobilized on an indium tin oxide electrode overlaid with an Ni-NTA gold substrate. The photoinduced displacement current of this electrode was measured to estimate the orientation of HHisRC on the electrode, and the detachability of HHisRC from the electrode was determined by using an imidazole solution wash. The direction of the flash-light-induced displacement current suggested that the H subunit side of the immobilized HHisRC faced the surface of the electrode. The photoinduced current disappeared after the electrode was washed in the imidazole solution. This simple immobilization and detachment of HHisRC to the electrode might be useful for making a reproducible photocurrent device.

L23 ANSWER 9 OF 12 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN
ACCESSION NUMBER: 1997:27380222 BIOTECHNO
TITLE: Determination of NO production in melanoma cells using an amperometric nitric oxide sensor
AUTHOR: Raveh O.; Peleg N.; Bettelheim A.; Silberman I.; Rishpon J.
CORPORATE SOURCE: J. Rishpon, Department of Molecular Microbiology, Tel-Aviv University, Ramat-Aviv 69978, Israel.
SOURCE: Bioelectrochemistry and Bioenergetics, (1997), 43/1 (19-25), 40 reference(s)
CODEN: BEBEBP ISSN: 0302-4598
PUBLISHER ITEM IDENT.: S0302459897000366
DOCUMENT TYPE: Journal; Article
COUNTRY: Switzerland
LANGUAGE: English
SUMMARY LANGUAGE: English

AN 1997:27380222 BIOTECHNO

AB This report describes the development of a simple, easy-to-fabricate, sensitive, and stable amperometric nitric oxide sensor. The sensor is based on metal-phthalocyanine mediators that are immobilized on a glassy carbon, Nafion(TM)-modified electrode. The detection of NO is based on the metal-phthalocyanine catalysis of NO oxidation at an anodic potential of +0.8 V. Measurements were performed with electrodes that had been modified using Co-, Mn-, Fe-, Cu-, or Ni-phthalocyanine or with metal-free, H-phthalocyanine. Comparing the responses to NO addition of the different metal-phthalocyanine-modified electrodes revealed that the Ni complex showed the highest catalytic activity. The activity of the Fe-phthalocyanine complex was high but less than that of the Ni complex. Mn- and Co-phthalocyanine were much less active. In a set of control experiments in which the phthalocyanine had been replaced by a metal-free, H-substituted phthalocyanine the response to NO addition was very low, clearly indicating that the metal center of the phthalocyanine is involved in the catalysis. Mediators were attached to the electrodes by solvating the mediator in organic solvent and then dropping the solution onto glassy carbon electrodes. The electrodes were then covered with a layer of Nafion(TM), which serves as a protective and permselective membrane. The Ni-phthalocyanine electrode was used to monitor NO production by the enzyme NO synthase and by the melanoma M2R cell line. The results suggest that the sensor can not only detect NO that is formed by the enzyme NO synthase, the producer of NO in-vivo, but also detect NO formed in-situ.

L23 ANSWER 10 OF 12 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 97:60693 LIFESCI

TITLE: A trainable cermet gas microsensor technology using cyclic voltammetry and neural networks

AUTHOR: Vogt, M.; Shoemaker, E.; Turner, T.; H.H. Weetall; M.F. McCurley (eds)

CORPORATE SOURCE: Argonne Natl. Lab., Argonne, IL, USA

SOURCE: PROCEEDINGS OF THE 6TH INTERNATIONAL MEETING ON CHEMICAL SENSORS. PART II., (1996) pp. 370-376;vol. B36, no. 1-3. Meeting Info.: 6TH INTERNATIONAL MEETING ON CHEMICAL SENSORS. Gaithersburg, MD (USA). 22-25 Jul 1996. ISSN: 0925-4005.

DOCUMENT TYPE: Journal

TREATMENT CODE: Conference

FILE SEGMENT: N3; R

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Argonne National Laboratory (ANL) has been developing an economical, new type of gas microsensor to evaluate and demonstrate a new gas sensing technology. The device employs neural data processing to decipher the complex information made available by applying cyclic voltammetry to a rugged, miniature cermet (ceramic metallic) sensing device. The device has demonstrated the potential to address many industrial, safety, and environmental applications. The ANL system employs stepped cyclic voltammetry to produce electrical 'signatures' from a cermet sensor sandwich. The sensors are composed of four overlapping screen-printed thick-films built on a ceramic substrate with an incorporated platinum heating element built on the reverse side from the sensor. The first film is a nickel metal oxide layer that provides a reference source of ions for the sensing device. This is followed by a sandwich of two platinum catalytic electrode layers separated by a tungsten-stabilized bismuth oxide solid electrolyte layer. As a cyclic voltage is ramped across the upper and lower catalytic electrodes (through the solid electrolyte), gases react at the three phase gas/solid electrolyte/electrode boundary and cause a change in the

measured ionic current flowing through the sensor. This associates a unique current-voltage profile with each gas species exposed to the sensor. This profile is then digitally sampled into a signature and computational neural networks are used to process the signature and train the sensor support electronics to identify and quantify the gas or mixture. The electrocatalytic (EC) multigas microsensor technology is still under development, but exhibits significant potential advantages over many other commercial gas-sensor technologies. The advantages of the EC microsensor approach are: (a) small size - current prototype microsensor is 2 x 3 x 0.1 mm; Supported by palm-sized micro-electronics package; (b) rugged cermet materials, suitable for high-temperature operation (100-500 degree C); copyright demonstrated 'flash' forced overheating (>500 degree C) to vaporize organic contaminants; (d) demonstrated multigas monitoring potential; (e) demonstrated proof-of-concept in detecting low ppm to high percent levels of O sub(2), N sub(2), CO sub(2), CO, CH sub(4) (and other HCs), and NO; (f) flexible identification and quantification with neural data processing techniques; (g) flexible interfacing with programmable output. The ANL technology produces a 'smart' sensor through the use of a dedicated programmable microcontroller. It demonstrates a viable mechanism for a variety of gas monitoring and process control applications. The trainability of the device in specific environments, coupled with rugged construction materials and a powerful measurement technique, give the device the potential to overcome many of the limitations which have plagued other technologies.

L23 ANSWER 11 OF 12 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN

ACCESSION NUMBER: 1995:25022042 BIOTECHNO

TITLE: Thin-film biosensor for the measurement of glucose concentration in human serum and urine

AUTHOR: Yu P.; Zhou D.

CORPORATE SOURCE: Lab. of Electroanalytical Chemistry, Changchun Inst. of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, China.

SOURCE: Analytica Chimica Acta, (1995), 300/1-3 (91-97)
CODEN: ACACAM ISSN: 0003-2670

DOCUMENT TYPE: Journal; Article

COUNTRY: Netherlands

LANGUAGE: English

SUMMARY LANGUAGE: English

AN 1995:25022042 BIOTECHNO

AB Solid-state technology and pulse electroplating were used to fabricate a glucose biosensor based on hydrogen peroxide detection. This glucose biosensor was composed of thin-film electrodes, and enzyme-immobilized and deactivated enzyme-immobilized membranes. The electrodes were fabricated by metallic film deposition. Cr and Ni adhesive layers were applied successively by vapour deposition on the thermally oxidized SiO.sub.2 isolating layer on a silicon substrate, and then the two metallic layers were patterned by the photolithographic method. Subsequently, a 1 µm thick Au layer was applied by means of pulse electroplating, forming two anodes and one common cathode in each sensor chip. On one anode, glucose oxidase (GOD) was immobilized by cross-linking with bovin serum albumin and glutaraldehyde. A deactivated GOD-immobilized membrane was formed on the other anode, which worked as a reference working electrode. A novel differential measurement system was used to treat the output signals of the two anodes by adjusting the initial position of the response curves, compensating amplifications of the individual I-V converters and treating the output signals with a subtraction circuit in order to decrease measurement error. The test results showed that the signal of ascorbic acid up to 4.5 mmol l.sup.-.sup.1 or uric acid up to 1.2 mmol l.sup.-.sup.1 was

successfully cancelled. Glucose concentrations in the range 0.02-4.0 mmol/l could be detected and an excellent linear response was obtained in the low concentration range. The correlation coefficient between the result of the enzyme electrode and the clinically enzymatic method for glucose measurement in human serum was 0.9912. Correlated results between the biosensor method and the routine clinical method for the measurement of glucose concentration in urine were obtained. The lifetime of the enzyme electrode was over 2 months.

L23 ANSWER 12 OF 12 CONFSCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 94:33612 CONFSCI

DOCUMENT NUMBER: 94-045617

TITLE: Au/Ti and Au/Ni-Cr metallization on CVD diamond substrates for multi-chip module applications

AUTHOR: Chilakamarri, P.; Naseem, H.; Meyyappan, I.; Brown, W.D.

CORPORATE SOURCE: Univ. Arkansas, High Density Electronics Cent. (HiDEC), Fayetteville, AR

SOURCE: Materials Research Society, Publications Department, 9800 McKnight Road, Pittsburgh, PA 15237 Telephone:(412) 367-3012, Proceedings.. Paper No. J4.5. Meeting Info.: 934 0157: Materials Research Society Fall Meeting 1993 (9340157). Boston, MA (USA). 29 Nov-3 Dec 1993 Materials Research Society.

DOCUMENT TYPE: Conference

FILE SEGMENT: DCCP

LANGUAGE: English

=> l15 (nickel or Ni)(7A)(substrate or layer or coated or coating)

MISSING OPERATOR 'L15 (NICKEL'

The search profile that was entered contains terms or nested terms that are not separated by a logical operator.

=> (nickel or Ni)(7A)(substrate or layer or coated or coating)

L24 44 FILE AGRICOLA

L25 103 FILE BIOTECHNO

L26 219 FILE CONFSCI

L27 22 FILE HEALSAFE

L28 140 FILE LIFESCI

L29 9373 FILE PASCAL

TOTAL FOR ALL FILES

L30 9901 (NICKEL OR NI)(7A)(SUBSTRATE OR LAYER OR COATED OR COATING)

=> (SENSOR OR MICROARRAY OR MICRODEVICE OR MICROCHIP or chip) and l30

L31 2 FILE AGRICOLA

L32 4 FILE BIOTECHNO

L33 1 FILE CONFSCI

L34 0 FILE HEALSAFE

L35 8 FILE LIFESCI

L36 306 FILE PASCAL

TOTAL FOR ALL FILES

L37 321 (SENSOR OR MICROARRAY OR MICRODEVICE OR MICROCHIP OR CHIP) AND L30

=> dup rem

ENTER L# LIST OR (END):l31-l35

L34 HAS NO ANSWERS

PROCESSING COMPLETED FOR L31

PROCESSING COMPLETED FOR L32
PROCESSING COMPLETED FOR L33
PROCESSING COMPLETED FOR L34
PROCESSING COMPLETED FOR L35
L38 14 DUP REM L31-L35 (1 DUPLICATE REMOVED)

=> d l38 ibib abs total

L38 ANSWER 1 OF 14 AGRICOLA Compiled and distributed by the National
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(2008) on STN

ACCESSION NUMBER: 2008:105254 AGRICOLA
DOCUMENT NUMBER: IND44085534
TITLE: Application of a quartz crystal nanobalance and
principal component analysis for the detection and
determination of histidine.
AUTHOR(S): Shojaei, Maryam; Mirmohseni, Abdolreza; Farbodi,
Maryam
AVAILABILITY: DNAL (QD71.F7)
SOURCE: Analytical and bioanalytical chemistry, 2008 Aug. Vol.
391, no. 8 p. 2875-2880
Publisher: Berlin/Heidelberg : Springer-Verlag
ISSN: 1618-2642
NOTE: Includes references
DOCUMENT TYPE: Article; (ELECTRONIC RESOURCE)
FILE SEGMENT: Non-US
LANGUAGE: English

AB The aim of the present investigation was to develop a biosensor based on a
quartz crystal nanobalance (QCN) for the detection of histidine (His). A
thin layer of nickel was electrochemically deposited
over the gold crystal electrode and exposed to H₂O₂ to form nickel
oxide. The composite electrode was then used to determine His. The
frequency shifts were linear with respect to the concentration of His in
solution. His can be measured in the range of 100-2000 mg L⁻¹ (British
pound). A lower limit of detection of 48 mg L⁻¹ (British pound) and a
sensitivity factor of 0.0307 Hz/mg L⁻¹ (British pound) was obtained. Some
possible interferences were checked for, and the performance of the
sensor was found to be unaffected by any interference except for
those from arginine, cysteine and NaH₂PO₄. Principal component analysis
(PCA) was used to process the frequency response data of the single
piezoelectric crystal at various times, considering the different
adsorption-desorption dynamics of His and the interfering compounds. Over
85% of the variance in the data was explained by two principal components.
A score plot of the data for the first two PCs showed that the modified
QCN yields favorable identification and quantification performances for
His and the interfering compounds.

L38 ANSWER 2 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN
ACCESSION NUMBER: 2007:174058 LIFESCI
TITLE: Improved affinity coupling for antibody microarrays
: Engineering of double- (His) sub(6)-tagged single
framework recombinant antibody fragments
AUTHOR: Steinhauer, Cornelia; Wingren, Christer; Khan, Farid; He,
Mingyue; Taussig, Michael J.; Borrebaeck, Carl A. K.
CORPORATE SOURCE: Department of Immunotechnology, Lund University, Lund,
Sweden; E-mail: carl.borrebaeck@immun.lth.se
SOURCE: Proteomics, (20060000) vol. 6, no. 15, pp. 4227-4234.
ISSN: 1615-9853.
DOCUMENT TYPE: Journal
FILE SEGMENT: W

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Antibody-based microarray is a novel technology with great promise in biomedicine that will provide unique means to perform global proteome analysis. In the process of designing the high-density antibody microarrays required, several critical key issues have been identified that remain to be resolved. In particular, there is a great need for specific and selective approaches enabling non-purified probes to be directly purified, orientated and coupled in a generic one-step procedure directly on the chip. In this study, we report on the successful design of affinity-tagged human recombinant single-chain fragment variable antibody fragments for improved affinity coupling in array applications. By replacing the standard single-histidine (His) sub(6)-tag with a consecutive double-(His) sub(6)-tag, the binding to Ni super(2+)-nitrilotriacetic acid-coated infstrates was significantly improved. Surface plasmon resonance analysis showed a significantly tighter binding with at least a threefold slower dissociation. The improved binding characteristics thus enabled non-purified probes even in the format of crude expression supernatants to be directly applied thereby eliminating the need for any time-consuming pre-purification step(s) prior to the immobilization. While the double-(His) sub(6)-tag probes were found to be expressed equally well as compared to the single-(His) sub(6)-tag probes, they displayed better long-term functional on-chip stability. Taken together, the results demonstrate the generic potential of double-(His) sub(6)-tag recombinant antibodies for the facile fabrication of high-density antibody microarrays.

L38 ANSWER 3 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2007:98206 LIFESCI

TITLE: Generation of High Density Protein Microarrays by Cell-free in Situ Expression of Unpurified PCR Products

AUTHOR: Angenendt, Philipp; Kreutzberger, Juergen; Gloekler, Joern; Hoheisel, Joerg D.

CORPORATE SOURCE: Functional Genome Analysis, German Cancer Research Center, Im Neuenheimer Feld 580, D-69120 Heidelberg, Germany and Max Planck Institute for Molecular Genetics, Ihnestrasse 73, and RiNA GmbH, Takustrasse 3, 14195 Berlin, Germany

SOURCE: Molecular and Cellular Proteomics [Mol. Cell. Proteomics], (20060900) vol. 5, no. 9, pp. 1658-1666. ISSN: 1535-9476.

DOCUMENT TYPE: Journal

FILE SEGMENT: N

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Due to the success of DNA microarrays and the growing numbers of available protein expression clones, protein microarrays have become more and more popular for the high throughput screening of protein interactions. However, the widespread applicability of protein microarrays is currently hampered by the large effort associated with their production. Apart from the requirement for a protein expression library, expression and purification of the proteins themselves and the lacking stability of many proteins remain the bottleneck. Here we present an approach that allows the generation of high density protein microarrays from unbound DNA template molecules on the chip. It is based on the multiple spotting technique and comprises the deposition of a DNA template in a first spotting step and the transfer of a cell-free transcription and translation mixture on top of the same spot in a second spotting step. Using wild-type green fluorescent protein as a model protein, we demonstrated the time and template dependence of this coupled transcription and translation and showed that enough protein

was produced to yield signals that were comparable to 300 μ g/ml spotted protein. Plasmids as well as unpurified PCR products can be used as templates, and as little as 35 fg of PCR product (similar to 22,500 molecules) were sufficient for the detectable expression of full-length wild-type green fluorescent protein in subnanoliter volumes. We showed that both aminopropyltrimethoxysilane and nickel chelate surfaces can be used for capture of the newly synthesized proteins. Surprisingly we observed that nickel chelate-coated slides were binding the newly synthesized proteins in an unspecific manner. Finally we adapted the system to the high throughput expression of libraries by designing a single primer pair for the introduction of the required T7 promoter and demonstrated the in situ expression using 384 randomly chosen clones.

L38 ANSWER 4 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2007:32186 LIFESCI

TITLE: Nano nickel oxide/nickel incorporated nickel composite coating for sensing and estimation of acetylcholine

AUTHOR: Shibli, S.M.A.; Beenakumari, K.S.; Suma, N.D.

CORPORATE SOURCE: Department of Chemistry, University of Kerala, Kariavottom Campus, Trivandrum, Kerala 695581, India; E-mail: smashibli@yahoo.com

SOURCE: Biosensors and Bioelectronics [Biosensors Bioelectron.], (20061200) vol. 22, no. 5, pp. 633-638. ISSN: 0956-5663.

DOCUMENT TYPE: Journal

FILE SEGMENT: W

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Pure nickel electrodes can be used as biosensors especially for sensing and estimating acetylcholine neurotransmitter. In the present work, a good electrochemical sensor was developed by electroplating nano nickel oxide reinforced nickel on graphite substrate. The morphology of the working electrode surface was studied by using a scanning electron microscope (SEM). The electrochemical and biological performance of the modified electrode was characterized by polarization studies in different media. The present modified electrode showed good sensing performance with a response time as low as 8 s during sensing and estimation of acetylcholine. The sensitivity of the modified electrode was 34.88 μ A/(μ M cm²).

L38 ANSWER 5 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2007:90341 LIFESCI

TITLE: Method for generation of in vivo biotinylated recombinant antibodies by yeast mating

AUTHOR: Scholler, N.; Garvik, B.; Quarles, T.; Jiang, S.; Urban, N.

CORPORATE SOURCE: Molecular Diagnostics Program, Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, Washington, USA; E-mail: nscholle@fhcrc.org

SOURCE: Journal of Immunological Methods [J. Immunol. Methods], (20061220) vol. 317, no. 1-2, pp. 132-143. ISSN: 0022-1759.

DOCUMENT TYPE: Journal

FILE SEGMENT: W; F

LANGUAGE: English

SUMMARY LANGUAGE: English

AB We describe here a novel method for generation of yeast-secreted, in vivo biotinylated recombinant antibodies, or biobodies. Biobodies are secreted by diploid yeast resulting from the fusion of two haploid yeast of opposite mating type. One yeast carries a cDNA encoding an antibody

recognition sequence fused to an IgA1 hinge and a biotin acceptor site (BCCP) at the C-terminus; the other carries a cDNA encoding an E. coli biotin ligase (BirA) fused to KEX2 golgi-localization sequences, so that BirA can catalyze the biotin transfer to the recognition sequence-fused BCCP within the yeast secretory compartment. We illustrate this technology with biobodies against HE4, a biomarker for ovarian carcinoma. Anti-HE4 biobodies were derived from clones or pools of anti-HE4-specific yeast-display scFv, constituting respectively monoclonal (mBb) or polyclonal (pBb) biobodies. Anti-HE4 biobodies were secreted directly biotinylated thus bound to labeled-streptavidin and streptavidin-coated surfaces without Ni-purification. Anti-HE4 biobodies demonstrated specificity and sensitivity by ELISA assays, flow cytometry analysis and Western blots prior to any maturation; dissociation equilibrium constants as measured by surface plasmon resonance sensor were of $K_{\text{sub}(d)}=4.8 \times 10^{\text{super}(-)} \text{super}(9) \text{ M}$ and $K_{\text{sub}(d)}=5.1 \times 10^{\text{super}(-)} \text{super}(9) \text{ M}$ before and after Ni-purification respectively. Thus, yeast mating permits cost-effective generation of biotinylated recombinant antibodies of high affinity. anti-mouse IgG (H+L) (H+L) polyclonal antibody raffinose and 0.1% dextrose

L38 ANSWER 6 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 2005:60216 LIFESCI

TITLE: Microarrays based on affinity-tagged single-chain Fv antibodies: Sensitive detection of analyte in complex proteomes

AUTHOR: Wingren, Christer; Steinhauer, Cornelia; Ingvarsson, Johan; Persson, Erik; Larsson, Katrin; Borrebaeck, Carl A. K.

CORPORATE SOURCE: Department of Immunotechnology, Lund University, Lund, Sweden; E-mail: carl.borrebaeck@immun.lth.se

SOURCE: Proteomics, (20050500) vol. 5, no. 5, pp. 1281-1291. ISSN: 1615-9853.

DOCUMENT TYPE: Journal

FILE SEGMENT: W3

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Protein-based microarrays are among the novel class of rapidly emerging proteomic technologies that will allow us to efficiently perform global proteome analysis. However, the process of designing adequate protein microarrays is a major inherent problem. In this study, we have evaluated a protein microarray platform based on nonpurified affinity-tagged single-chain (sc) Fv antibody fragments to generate proof-of-principle and to demonstrate the specificity and sensitivity of the array design. To this end, we used our human recombinant scFv antibody library genetically constructed around one framework, the n-CoDeR library containing 2×10^{10} clones, as a source for our probes. The probes were immobilized via engineered C-terminal affinity tags, his-or myc-tags, to either Ni super(2+)-coated slides or anti-tag antibody coated substrates. The results showed that highly functional microarrays were generated and that nonpurified scFvs readily could be applied as probes. Specific and sensitive microarrays were obtained, providing a limit of detection in the pM to fM range, using fluorescence as the mode of detection. Further, the results showed that spotting the analyte on top of the arrayed probes, instead of incubating the array with large sample volumes (333 pL vs. 40 μ L), could reduce the amount of analyte required 4000 times, from 1200 attomole to 300 zeptomole. Finally, we showed that a highly complex proteome, such as human sera containing several thousand different proteins, could be directly fluorescently labeled and successfully analyzed without compromising the specificity and sensitivity of the antibody microarrays. This is a prerequisite for the design of high-density antibody arrays applied in high-throughput

proteomics.

L38 ANSWER 7 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN
ACCESSION NUMBER: 2004:110239 LIFESCI
TITLE: A Metal-Chelating Piezoelectric Sensor
Chip for Direct Detection and Oriented
Immobilization of PolyHis-Tagged Proteins
AUTHOR: Chen, Hsiu-Mei; Wang, Wei-Cheng; Chen, Sheng-Horng
CORPORATE SOURCE: Department of Chemical Engineering, National Taiwan
University of Science and Technology, Taipei 106, Taiwan;
E-mail: hsiumei@ch.ntust.edu.tw
SOURCE: Biotechnology Progress [Biotechnol. Prog.], (20040800) vol.
20, no. 4, pp. 1237-1244.
ISSN: 8756-7938.
DOCUMENT TYPE: Journal
FILE SEGMENT: W2
LANGUAGE: English
SUMMARY LANGUAGE: English
AB A metal-chelating piezoelectric (PZ) chip for direct detection
and controlled immobilization of polyHis-tagged proteins has been
demonstrated. The chip was prepared by covalently binding a
hydrogel matrix complex of oxidized dextran and nitrilotriacetic acid
(NTA) ligand onto an activated alkanethiol-modified PZ crystal. The
resulting chip effectively captured Ni super(2+) ions onto its
NTA surface, as disclosed by the resonant frequency shift of the crystal
and an X-ray photoelectron spectroscopy analysis. The real-time frequency
analysis revealed that the bare NTA chip was nonfouling,
regenerable, and highly reusable during continuous repetitive injections
of ion solutions and binding proteins. In addition, the chip
displayed good long-term reusability and storage stability. The individual
binding studies of a polyHis-tagged glutathione-S-transferase and its
native untagged form on various metal-charged chips revealed
that Co super(2+), Cu super(2+), and Ni super(2+) ions each had different
immobilization ability on the NTA surface, as well as their binding
ability and selectivity with the tagged protein. As a result, the tagged
protein immobilized on the Ni super(2+)-charged chip can
actively be bound with its antibody and substrate. Further, the
quantitative analyses of the tagged protein in crude cell lysate with a
single Ni super(2+)-charged chip and of its
substrate with a protein-coated chip were also
successfully demonstrated. Therefore, this study initiates the
possibilities of oriented, reversible, and universal immobilization of any
polyHis-tagged protein and its functional study using a real-time PZ
biosensor.

L38 ANSWER 8 OF 14 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN
ACCESSION NUMBER: 2003:36694115 BIOTECHNO
TITLE: Multianalyte immunoassay with self-assembled
addressable microparticle array on a chip
AUTHOR: Zhi Z.-L.; Murakami Y.; Morita Y.; Hasan Q.; Tamiya E.
CORPORATE SOURCE: E. Tamiya, School of Materials Science, Japan Adv.
Inst. of Sci./Technology, 1-1, Asahidai, Tatsunokuchi,
Ishikawa 923-1292, Japan.
E-mail: tamiya@jaist.ac.jp
SOURCE: Analytical Biochemistry, (15 JUL 2003), 318/2
(236-243), 32 reference(s)
CODEN: ANBCA2 ISSN: 0003-2697
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English

AN 2003:36694115 BIOTECHNO

AB This paper describes the random fluidic self-assembly of metallic particles into addressable two-dimensional microarrays and the use of these arrays as a platform for constructing a biochip useful for bioassays. The basic units in the assembly were the microfabricated particles carrying a straightforward visible code and the corresponding array template patterned on a glass substrate. The particles consisted of a hydrophobic and magnetic Ni-polytetrafluoroethylene (PTFE) composite layer on one face, and on the other face a gold layer that was modified for biomolecular attachment. An array template was photoresist-patterned with spatially discrete microwells in which an electrodeposited Ni-PTFE hydrophobic composite layer and a hydrophobic photo-adhesive coating were deposited. The particles, after biomaterial attachment and binding processes in bulk, were self-assembled randomly onto the lubricated bonding sites on the chip substrate, driven by a combination of magnetic, hydrophobic, and capillary interactions. The encoding symbol carried by the particles was used as the signature for the identification of each target/assay attached to the particle surface. We demonstrate here the utility of microfabricated-encoded particle arrays for conducting multianalyte immunoassays in a parallel fashion with the use of imaging detection. .COPYRGHT. 2003 Published by Elsevier Science (USA).

L38 ANSWER 9 OF 14 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2008) on STN DUPLICATE 1

ACCESSION NUMBER: 2001:28429 AGRICOLA

DOCUMENT NUMBER: IND22079952

TITLE: Self-assembling photosynthetic reaction centers on electrodes for current generation.

AUTHOR(S): Nakamura, C.; Hasegawa, M.; Yasuda, Y.; Miyake, J.

SOURCE: Applied biochemistry and biotechnology, Spring 2000. Vol. 84/86 p. 401-408

Publisher: Totowa, N.J. : Humana Press.

CODEN: ABIBDL; ISSN: 0273-2289

NOTE: Proceedings of the Twenty-First Symposium on Biotechnology for Fuels and Chemicals, May 2-6, 1999, Fort Collins, Colorado.

Includes references

PUB. COUNTRY: New Jersey; United States

DOCUMENT TYPE: Article

FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension

LANGUAGE: English

AB Photosynthetic reaction centers (RCs) made from photosynthetic organisms can be used in solar batteries because their molecules cause light-induced charge separation. We present a simple immobilization system of the intact RCs from Rhodobacter sphaeroides on an electrode that uses nickel ligand binding by the hexameric histidine tag on H subunit (HHisRC). The binding constant of HHisRC to the nickel-nitrilotriacetic acid (Ni-NTA) chip measured with a surface plasmon resonance instrument was 1.6×10^8 M⁻¹. HHisRCs were immobilized on an indium tin oxide electrode overlaid with an Ni-NTA gold substrate. The photoinduced displacement current of this electrode was measured to estimate the orientation of HHisRC on the electrode, and the detachability of HHisRC from the electrode was determined by using an imidazole solution wash. The direction of the flash-light-induced displacement current suggested that the H subunit side of the immobilized HHisRC faced the surface of the electrode. The photoinduced current disappeared after the electrode was washed in the imidazole solution. This simple immobilization and detachment of HHisRC to the electrode might be useful for making a

reproducible photocurrent device.

L38 ANSWER 10 OF 14 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN

ACCESSION NUMBER: 1999:29431915 BIOTECHNO

TITLE: Core-directed protein design. I. An experimental method for selecting stable proteins from combinatorial libraries

AUTHOR: Finucane M.D.; Tuna M.; Lees J.H.; Woolfson D.N.

CORPORATE SOURCE: D.N. Woolfson, Ctr. for Biomolec. Design/Drug Devt., School of Biological Sciences, University of Sussex, Falmer, Brighton BN1 9QG, United Kingdom.
E-mail: dek@biols.sussex.ac.uk

SOURCE: Biochemistry, (07 SEP 1999), 38/36 (11604-11612), 39 reference(s)

CODEN: BICHAW ISSN: 0006-2960

DOCUMENT TYPE: Journal; Article

COUNTRY: United States

LANGUAGE: English

SUMMARY LANGUAGE: English

AN 1999:29431915 BIOTECHNO

AB The design of proteins represents a significant challenge to modern-day structural biology. A major obstacle here is the specification of well-packed hydrophobic cores to drive the folding and stabilization of the target. Computational approaches have been used to alleviate this by testing alternate sequences prior to the production and characterization of a few proteins. Here we present the experimental counterpart of this approach. We selected stable variants from a library of ubiquitin hydrophobic-core mutants as follows. Hexahistidine-tagged proteins were displayed on the surface of phage. These protein-phage were immobilized onto Ni-coated surfaces. The bound fusion-phage were treated with protease to remove unstable or poorly folded proteins. Stable phage fusions were eluted and infected into Escherichia coli, which allowed amplification for further selection, sequencing, or protein expression. Two Ni-derivatized supports were tested: Ni-NTA chips for surface plasmon resonance (SPR) and Ni-NTA agarose beads. SPR had an advantage in that the selection process could be monitored directly. This allowed individual clones and experimental conditions to be tested rapidly prior to preparative panning of the library, which was carried out using Ni-NTA agarose beads. We demonstrate the method by selecting stable core mutants of ubiquitin, the characterization of which is described in the following paper (Finucane, M.D., and Woolfson, D.N. (1999) Biochemistry 38, XXXXX-XXXXX!). As our method selects only on the basis of structure and stability, it will be of use in improving the stabilities and structural specificities of proteins of de novo design, and in establishing rules that link sequence and structure.

L38 ANSWER 11 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 1999:70936 LIFESCI

TITLE: Electrochemical detection of nitric oxide production in perfused pig coronary artery: Comparison of the performances of two electrochemical sensors

AUTHOR: Villeneuve, N.; Bedioui, F.; Voituriez, K.; Avaro, S.; Vilaine, J.P.

CORPORATE SOURCE: Institut de Recherches Servier, Division Pathologies Cardiaques et Vasculaires, 11 rue des Moulineaux, 92150 Suresnes, France; E-mail: nville@netgrs.com

SOURCE: Journal of Pharmacological and Toxicological Methods [J. Pharmacol. Toxicol. Methods], (19980800) vol. 40, no. 2, pp. 95-100.

ISSN: 1056-8719.

DOCUMENT TYPE: Journal

FILE SEGMENT: X
LANGUAGE: English
SUMMARY LANGUAGE: English

AB In situ direct measurement of nitric oxide (NO) in biological media is now possible by means of electrochemical detection. In the literature, there are principally two amperometric approaches based on the direct oxidation of NO either on a sensor made from platinum/iridium (Pt/Ir) alloy coated with a three-layered membrane or on a nickel porphyrin and Nafion-coated carbon fiber electrode. Nonetheless, the exact nature of the experimental amperometric signal obtained with the Pt/Ir system was never authenticated as being related to NO. This study compared responses of two sensors to the inhibition effect of N super(Delta)-nitro-L-arginine (L-NA) as the amperometric signals produced by 5-hydroxytryptamine (5-HT) on isolated pig coronary preparations. These amperometric signals could be attributed to NO only for the nickel porphyrin and Nafion-coated carbon fiber electrode. Indeed, voltammetric characterization of the electrochemical response demonstrated only variations of the baseline current upon additions of either SNAP or NO on the Pt/Ir electrode instead of anodic peak current displayed at 0.63-0.75 V for the other system. Nitrites induced baseline current variations with the Pt/Ir electrode, similar to those obtained with S-nitroso-N-acetyl-dl-penicillamine (SNAP) or NO. This study highlights the potential hazards and pitfalls that may be associated with the use of a Pt/Ir sensor calibrated with SNAP solutions for the detection of NO production in various biological systems.

L38 ANSWER 12 OF 14 LIFESCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 97:60693 LIFESCI
TITLE: A trainable cermet gas microsensor technology using cyclic voltammetry and neural networks
AUTHOR: Vogt, M.; Shoemaker, E.; Turner, T.; H.H. Weetall; M.F. McCurley (eds)
CORPORATE SOURCE: Argonne Natl. Lab., Argonne, IL, USA
SOURCE: PROCEEDINGS OF THE 6TH INTERNATIONAL MEETING ON CHEMICAL SENSORS. PART II., (1996) pp. 370-376;vol. B36, no. 1-3. Meeting Info.: 6TH INTERNATIONAL MEETING ON CHEMICAL SENSORS. Gaithersburg, MD (USA). 22-25 Jul 1996. ISSN: 0925-4005.
DOCUMENT TYPE: Journal
TREATMENT CODE: Conference
FILE SEGMENT: N3; R
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Argonne National Laboratory (ANL) has been developing an economical, new type of gas microsensor to evaluate and demonstrate a new gas sensing technology. The device employs neural data processing to decipher the complex information made available by applying cyclic voltammetry to a rugged, miniature cermet (ceramic metallic) sensing device. The device has demonstrated the potential to address many industrial, safety, and environmental applications. The ANL system employs stepped cyclic voltammetry to produce electrical 'signatures' from a cermet sensor sandwich. The sensors are composed of four overlapping screen-printed thick-films built on a ceramic substrate with an incorporated platinum heating element built on the reverse side from the sensor. The first film is a nickel metal oxide layer that provides a reference source of ions for the sensing device. This is followed by a sandwich of two platinum catalytic electrode layers separated by a tungsten-stabilized bismuth oxide solid electrolyte layer. As a cyclic voltage is ramped across the upper and lower catalytic electrodes (through the solid electrolyte), gases react at the three phase

gas/solid electrolyte/electrode boundary and cause a change in the measured ionic current flowing through the sensor. This associates a unique current-voltage profile with each gas species exposed to the sensor. This profile is then digitally sampled into a signature and computational neural networks are used to process the signature and train the sensor support electronics to identify and quantify the gas or mixture. The electrocatalytic (EC) multigas microsensor technology is still under development, but exhibits significant potential advantages over many other commercial gas-sensor technologies. The advantages of the EC microsensor approach are: (a) small size - current prototype microsensor is 2 x 3 x 0.1 mm; Supported by palm-sized micro-electronics package; (b) rugged cermet materials, suitable for high-temperature operation (100-500 degree C); copyright demonstrated 'flash' forced overheating (>500 degree C) to vaporize organic contaminants; (d) demonstrated multigas monitoring potential; (e) demonstrated proof-of-concept in detecting low ppm to high percent levels of O sub(2), N sub(2), CO sub(2), CO, CH sub(4) (and other HCs), and NO; (f) flexible identification and quantification with neural data processing techniques; (g) flexible interfacing with programmable output. The ANL technology produces a 'smart' sensor through the use of a dedicated programmable microcontroller. It demonstrates a viable mechanism for a variety of gas monitoring and process control applications. The trainability of the device in specific environments, coupled with rugged construction materials and a powerful measurement technique, give the device the potential to overcome many of the limitations which have plagued other technologies.

L38 ANSWER 13 OF 14 BIOTECHNO COPYRIGHT 2008 Elsevier Science B.V. on STN

ACCESSION NUMBER: 1995:25022042 BIOTECHNO

TITLE: Thin-film biosensor for the measurement of glucose concentration in human serum and urine

AUTHOR: Yu P.; Zhou D.

CORPORATE SOURCE: Lab. of Electroanalytical Chemistry, Changchun Inst. of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, China.

SOURCE: Analytica Chimica Acta, (1995), 300/1-3 (91-97)

CODEN: ACACAM ISSN: 0003-2670

DOCUMENT TYPE: Journal; Article

COUNTRY: Netherlands

LANGUAGE: English

SUMMARY LANGUAGE: English

AN 1995:25022042 BIOTECHNO

AB Solid-state technology and pulse electroplating were used to fabricate a glucose biosensor based on hydrogen peroxide detection. This glucose biosensor was composed of thin-film electrodes, and enzyme-immobilized and deactivated enzyme-immobilized membranes. The electrodes were fabricated by metallic film deposition. Cr and Ni adhesive layers were applied successively by vapour deposition on the thermally oxidized SiO.sub.2 isolating layer on a silicon substrate, and then the two metallic layers were patterned by the photolithographic method. Subsequently, a 1 µm thick Au layer was applied by means of pulse electroplating, forming two anodes and one common cathode in each sensor chip. On one anode, glucose oxidase (GOD) was immobilized by cross-linking with bovin serum albumin and glutaraldehyde. A deactivated GOD-immobilized membrane was formed on the other anode, which worked as a reference working electrode. A novel differential measurement system was used to treat the output signals of the two anodes by adjusting the initial position of the response curves, compensating amplifications of the individual I-V converters and treating the output signals with a subtraction circuit in order to decrease measurement error. The test results showed that the signal of ascorbic acid up to 4.5

mmol l.sup.-.sup.1 or uric acid up to 1.2 mmol l.sup.-.sup.1 was successfully cancelled. Glucose concentrations in the range 0.02-4.0 mmol/l could be detected and an excellent linear response was obtained in the low concentration range. The correlation coefficient between the result of the enzyme electrode and the clinically enzymatic method for glucose measurement in human serum was 0.9912. Correlated results between the biosensor method and the routine clinical method for the measurement of glucose concentration in urine were obtained. The lifetime of the enzyme electrode was over 2 months.

L38 ANSWER 14 OF 14 CONFSCI COPYRIGHT 2008 CSA on STN

ACCESSION NUMBER: 94:33612 CONFSCI

DOCUMENT NUMBER: 94-045617

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